Understanding Food Choice and Perceived Value of the WIC Food Packages Among Low-income Caregivers

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DISSERTATION

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LIST OF ABBREVIATIONS

CVV	Cash Value Voucher
DGAs	Dietary Guidelines for Americans
EBT	Electronic Benefits Transfer
FCP	Food Choice Process
FITS	Feeding Infants and Toddlers Study
FNS	Food and Nutrition Service
FSP	Food Stamp Program
HEI	Healthy Eating Index
HNIP	Higgins Nutrition Intervention Program
NSLP	National School Lunch Program
PCS	Participant Centered Services
SNAP	Supplemental Nutrition Assistance Program
TANF	Temporary Assistance for Needy Families
USDA	United States Department of Agriculture
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

SUMMARY

This dissertation was part of a larger study to assess and address retention of children in the Illinois WIC program. Participants' perceived value of the food packages offered in WIC may influence their intention and ability to remain in the program. Using a mixed method approach, this study sought to gain an in-depth understanding of caregivers' food choices and their perceived value of the WIC food packages.

Specific aim one used baseline data from the larger study to examine participants' preferences and value of the food provided in the WIC program. In the second aim, an in-depth qualitative study was conducted to explore the factors that influence caregivers' food preferences and perceived value of the WIC program and food packages by identifying emerging themes from participants' own words and explanations. The third and final aim applied the Food Choice Process Model to gain a deeper understanding of the overall factors that influence food choice of parents/caregivers in WIC.

Understanding caregivers' food preferences, lifestyle, and experiences in their own words could help policy makers improve the WIC program and better inform efforts aimed at keeping families enrolled in WIC.

CHAPTER I: INTRODUCTION

A. BACKGROUND

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides nutritious foods, nutrition education, breastfeeding support, and health care/social service referrals to approximately 8.3 million low-income pregnant and postpartum women, infants, and children up to the age of 5 that are at nutritional risk each month. As the third-largest nutrition assistance program in the United States, WIC is a central component of the federal food and nutrition safety net. Approximately half of all infants and one fourth of all children aged 1 through 4 are enrolled in WIC at some point during their lifetime[1].

Given its mission and scope, the contribution of WIC to maternal and child health has been well documented. Over 20 years of research has demonstrated the positive impact of WIC on nutrient adequacy (including intakes of Iron, Vitamin A, and Vitamin C), health outcomes, and healthy growth and development among participating women and children[2-9]. Additionally, studies show that every dollar spent on WIC results in an estimated $1.77-$3.13 savings in health care costs[9].

B. STATEMENT OF THE PROBLEM

Despite the benefits of WIC, participation in the program has surprisingly continued to decline over the last 5 years. Since peaking in fiscal 2010, the number of participants has decreased by almost 10 percent[10]. In 2014, WIC experienced the largest 1-year decrease since the program's inception in 1974 (5% decrease) [11]. As compared to women and infants, eligible children 1-4 are less likely to participate in the program. In 2011, the coverage rate for children ages 1-4 (ratio of

WIC participants compared to the population who are eligible) was 53.6% while the coverage rates infants, pregnant women, and postpartum women were 83.4%, 69.5%, and 76.0% respectively[12]. Additionally, in fiscal 2014, the number of women and infants in WIC fell by 4% and 3% respectively whereas the number of children decreased by 6% [3]. Although there is a sharp decline in the number of children that continue to stay enrolled in the WIC program after 1 year of age, evidence suggests that parents'/caregivers' intention to leave the program may start in infancy (at 7 months of age)[13].

To ensure that the positive impacts of WIC continue, interventions to improve participation and retention in the program, particularly among eligible children, are greatly needed. Yet, to inform the development of these interventions, it is important to understand participants' perceptions of the benefits provided in the program.

C. PURPOSE OF THE STUDY

The purpose of the study in this dissertation is to examine parents/caregiver's perceived value of WIC and to understand the food choices of these low-income caregivers pertaining to the WIC food packages and to their food systems in general.

D. SIGNIFICANCE OF THE PROBLEM AND THE STUDY

This study is relevant for several reasons. First, food packages are an important aspect of the WIC program. Approximately $4.6 million of the 6.7 million dollars in WIC program costs are used to purchase food[11]. Secondly, this study specifically targets WIC caregivers whose infants will soon transition to the child package. The study targeted these caregivers because children are at the greatest risk of early exit from the WIC program and the largest decline in participation occurs

when children transition from the infant food packages to the child food package[13]. Thus, this dissertation study targets parents/caregivers of infants potentially near the time that they make the decision to continue participation in the program or not.

This dissertation is written in the form of 3 aims, following an overview of the conceptual framework and related literature pertaining to WIC, low-income caregivers, and food choice. The aims of the dissertation address the 'what', 'why', and 'how' behind the food choices of low-income WIC caregivers primarily using a qualitative approach but also supplemented by quantitative data in aim 1. Aim 1 explored participants' preferences and perceived value of WIC foods; aim 2 sought to provide an in-depth understanding of factors that contribute to low income caregivers' food preferences and perceived value of WIC foods; and aim 3 applied the Food Choice Process (FCP) [14] as the conceptual framework to gain a better understanding of the factors that motivate participants food choices more broadly. In aim 1, descriptive statistics were calculated using SPSS[15]. In all three aims, in-depth interviews were analyzed using constant comparative analysis. However, in aim 3, case studies were developed for each participant to offer a deeper theoretical understanding of low-income WIC parents' food choices for themselves and their children using the FCP model.

CHAPTER II: LITERATURE REVIEW

A. OVERVIEW OF WIC AND THE WIC FOOD PACKAGES

Administered by the United States Department of Agriculture Food and Nutrition Service, the WIC program is administered in all 50 States, 34 Indian Tribal Organizations, the District of Columbia, and five territories (Northern Mariana, American Samoa, Guam, Puerto Rico, and the Virgin Islands) through 90 WIC state agencies, 1,900 local agencies, and 10,000 clinic sites. WIC is a federal grant program for which Congress authorizes a specific amount of funding each year. However, unlike the Supplemental Nutrition Assistance Program (SNAP) and the National School Lunch Program (NSLP), WIC is not an entitlement program, as Congress does not set aside funds to allow every eligible individual to participate in the program[11].

The historical development of the WIC program also differs from its larger government nutrition assistance program counterparts. Whereas the beginnings of WIC were based primarily on the nutrition needs of low-income women and pre-school aged children[11], establishment of SNAP (formerly known as the Food Stamp Program (FSP)) and NSLP was largely driven by economic factors during the 1930s and 1940s[16,17]. Although NSLP and SNAP (formerly FSP) helped and continue to address food insecurity and hunger [17-20] they were initially intended to address the agricultural surplus of commodities in the United States and create jobs and bring income to farmers under the Works Progress Administration [16,17,21]. Both programs' early stages began decades before their permanency due to lapses in funding and legislative proposals. NSLP and FSP were permanently signed into law in 1946 and 1964 respectively [16,17]. To illustrate the initial intent of NSLP, the National School Lunch Act of 1946 states in section 2, implementation for purposes of national defense before child well-being followed by

consumption of agricultural commodities[22]. This passage has not changed since it was signed into law in 1946:

> *"It is hereby declared to be the policy of Congress, as a measure of national security, to safeguard the health and well-being of the nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other food, by assisting the States, through grants-in-aid and other means, in providing an adequate supply of food and other facilities for the establishment, maintenance, operation, and expansion of nonprofit school lunch programs.* (Pub. L. 79-396, Stat. 281, Sect. 2, 1946)"

Due to amendments to the National School Lunch Act in the early 60s that re-routed funding toward classroom activities and compensatory education, funding for child feeding programs in many schools suffered [21]. It was not until 1966 under the Child Nutrition Act, that the focus of NSLP and other national programming for children shifted toward the nutrition needs of children. Congress signed into law funding toward efforts to improve the health of children based on the *"demonstrated relationship between food and good nutrition and the capacity of children to develop and learn"* [23]. The Commodity Supplemental Food Program (originally named the Supplemental Food Program) was also in 1969, which provided supplemental commodity foods to low-income pregnant women and children up to age 6[24].

Although these shifts in funding aimed at addressing the public concerns about malnutrition and suffering among low-income women and children occurred, existing nutrition programs such as the Food Stamp Program and the Commodity Supplemental Food Program were not enough to meet the needs of these special populations. In 1968, a group of physicians convened in Washington DC to discuss these nutritional needs with officials from the United States Department of Agriculture (USDA) and the Department of Health, Education, and Welfare. Their plan included a system of food commissaries attached to clinics where pregnant women could redeem prescribed vouchers for food packages specifically designed to meet their nutritional needs[24]. This system, influenced by the work of Agnes Higgins, a dietitian at the

Montreal Diet Dispensary in Canada, evolved into pilot program and the beginnings of the first WIC program. The Higgins Nutrition Intervention Program (HNIP) established the criteria for assessing the nutritional risk of pregnant women followed by tailored nutritional counseling and provision of specific supplemental foods to address the high-risk needs of these women. By tracking the health outcomes of the HNIP participants, this work was able to show an improvement in the birth weights of infants born to mothers receiving the intervention [25].

WIC was established as a pilot program in 1972 as an amendment to the Child Nutrition Act of 1966 to address the nutrition needs of low-income pregnant women and pre-school aged children [11]. By 1974 the Special Supplemental Nutrition Program for Women, Infants, and Children was operating in 45 states and by 1975 the program was signed into national law permanently. Initially the program served only pregnant and breastfeeding women and their children till age 4, but later in 1975 the program was expanded to include non-breastfeeding women (6 months postpartum) and children until age 5. Throughout the years WIC continued to update its legislation to include nutrition education requirements, coordination of healthcare and social service referrals, and foods that meet the specific needs of the target populations [11].

Eligibility in WIC is based on three criteria: 1) *Categorical Eligibility*- being a member of one of these groups: pregnant woman; breastfeeding woman up to 1 year postpartum; woman less than 6 months postpartum; infant age 0 through 11 months; or young child from age 1 through 4 years; 2) *Income Eligibility*- income at or below 185 percent of federal poverty guidelines or enrolled in Temporary Assistance for Needy Families (TANF), SNAP, or Medicaid programs (or other assistance program designated by the state of residence); and 3) *Nutritional Risk*- having at least one of an approved list of nutritional risk factors for a poor health outcome such as obesity, underweight, anemia, etc.[11].

In WIC, supplemental foods are made available to clients monthly in the form of seven different food packages. To obtain these foods, WIC participants are given WIC Food Instruments in the form of paper vouchers or an Electronic Benefits Transfer (EBT) card that must be redeemed at a WIC approved vendor such as a grocery store or WIC Food Center. All states are required to transition from paper vouchers to EBT by 2020[11,26]. "Supplemental foods" are defined as "those foods containing nutrients determined by nutritional research to be lacking in the diets of pregnant, breastfeeding, and postpartum women, infants, and children, and those foods that promote the health of the population served by the program as indicated by relevant nutrition science, public health concerns, and cultural eating patterns". The Food and Nutrition Service (FNS) further determines the nutritional standards for some of the food items allowed in the WIC food packages (for example juice and cereal). Consequently, the foods provided in WIC food packages consider both inadequate and excessive intakes of nutrients and foods for each participant category[27]. The packages are described below; for a more detailed depiction of the different WIC food packages and participant categories see Appendix I.

A.1. Packages I-III; Infant food packages

Infants who are partially and fully formula fed receive monthly allowances for formula per their age level and medical needs. Fully breastfed infants aged 0-5 months do not receive foods, but breastfeeding women receive more food in their packages as both an incentive to breastfeed as well as to meet the heightened nutritional needs of breastfeeding. At 6 months, infants receive a package that includes solid foods. All infants aged 6-11 months receive infant cereal and baby food fruits and vegetables. Fully breastfed infants receive more baby food fruits and vegetables as well as baby food meat [28].

A.2. Package IV; Child food packages

When a child turns 1 year old in WIC, the enrolled child begins to receive a different food package (the child food package) than the package than he or she was receiving as an infant. Also, when a child turns 1 year old, the WIC eligible household can no longer receive infant formula except in cases where the child is medically fragile[10]. Child packages contain the same categories of foods as the packages for women (except canned fish), but lesser quantities of juice and fruit and vegetable vouchers and more whole grains [28].

A.3. Packages V-VII; Women Packages

WIC eligible women can receive a food package throughout pregnancy. Breastfeeding and partially breastfeeding mothers can receive WIC foods until her child turns one and those who do not breastfeed can receive WIC foods up to 6 months postpartum. WIC food packages for women include monthly allowances of juice, milk (allowable options for milk alternatives are cheese, soy beverage, and tofu), breakfast cereal, eggs, cash vouchers for fruits and vegetables, whole grains (whole wheat bread, whole wheat pasta, brown rice, bulgur, oatmeal, whole-grain barley, soft corn or whole wheat tortillas), and legumes (dry or canned legumes and/or peanut butter). Fully breastfeeding women receive more juice, milk, whole grains and legumes options than those who formula feed their infants, as well as an allowance of canned fish (light tuna, salmon, sardines, and mackerel) [28].

A.4. Changes to WIC Food Packages

WIC food packages were updated significantly in 2009 to better reflect the Dietary Guidelines for Americans and the current population's needs. Women's and Children's packages were revised include a cash value fruit and vegetable voucher for $8.00 and $10.00. Package revisions also included the addition of more whole grain choices. Juice was eliminated from the

packages for infants but only reduced in the women's and children's packages. Further package revisions in included and restrictions on full fat milk for children over the age of two[27]. Improving nutrition standards in response to the changing science and growing needs of the population continue to shape the operation of federal nutrition programs such as WIC[29], therefore modifying these programs is an important part of achieving the best health outcomes over time.

B. WIC PARTICIPATION AND RETENTION

Few studies have examined barriers and facilitators to accessing and using WIC services and studies that look at the role of the food packages specifically to understand perceptions of the program are particularly limited. Previous studies have found that households with higher income, households in which mothers are more educated and were employed after the child's birth, and households with mothers who did not breastfeed and those who breastfed for less than 6 months were more likely to exit the WIC program before a child turns one year of age [10,30,31]. Approximately 36% of those that exited the program indicated that it was too much effort and the benefits are not worth the time or that they had scheduling and transportation problems suggesting that such transaction costs of participation may be a barrier to continued participation in WIC [10]. Evidence also suggests that rates of retention for child participants are influenced by participation in other public assistance programs, and are associated with race/ethnicity, marital status, and/or parity of the mother/guardian[7,32,33]

In addition, the discrepancy of value in WIC food benefits between the infant and child package for some participants may play a role in a household's decision to exit WIC. In fiscal year 2005, the average retail value of the WIC food package for infants was $97.86 per month, while the average retail value of the child package was $39.97 per month[1]. Jensen and Labbock

(2011) state there is a great need for additional research in this area and postulate further that "major factors, such as participants' perceptions of the value of the packages and WIC's dependency on rebates from formula companies to fund a portion of the program, may dampen WIC's breastfeeding promotion and support efforts" [34]. An economic analysis of formula and breastfeeding in the WIC program reveals the retail price of infant formula does drive up the value of these packages for the first 6 months of the child's life [35].

Difficulties with procurement of WIC foods concerning availability and correct package sizes, as well as negative interactions with store cashiers and other shoppers have also been cited by clients who have used WIC[36,37]. One recent study assessed the barriers and facilitators to using the WIC fruit and vegetable cash value vouchers (CVVs). Compared to the standard WIC voucher, WIC participants felt that the CVVs provided more flexibility with purchasing, more comfortable interactions with the cashier at checkout, and increased the likelihood of complete redemption. Participants also reported that purchasing food items with CVVs made the WIC experience worth the effort each month[36]. Specific to participants' perceptions of WIC foods, Woelfel et al. (2004) found that limited variety, quality, and quantity of foods in the WIC packages may exist[37] but the reasoning behind these perceptions remains largely unexplored. Understanding the motivations and food preferences of caregivers feeding their children could help explain why some participants underutilize beneficial nutrition programs like WIC.

C. POSITIVE OUTCOMES ASSOCIATED WITH CHILD PARTICIPATION IN WIC

Most of the well-established findings on the benefits and effectiveness of the WIC program center on pregnant women and infant related outcome measures. These include, but are not limited to: healthier pregnancy weight gain, healthier birth weights, fewer nights spent in a

hospital after delivery, lower rates of preterm delivery, lower rates of infants spending time in the intensive care unit, lower rates and decreases in smoking during pregnancy, higher rates of cessation of smoking during and after pregnancy, and higher numbers of prenatal visits[38]. While each of these outcomes is reflective of the effectiveness of WIC and holds implications of future child wellbeing, studies that follow older children in WIC could better reflect the program's large impact on child health in the US.

Several studies have reported positive impacts of WIC on child dietary and health outcomes. Children participating in WIC show increased intakes of specific nutrients: B6, calcium, fiber, iron, potassium, and zinc[4,39] as well as overall improvement in dietary quality as measured by the Healthy Eating Index (HEI). For example, the diets of preschool aged children enrolled in WIC consume diets of higher nutrient density and decreased percent energy intake from sugar at non-snack meals than children who are eligible for WIC but do not enroll[2]. Further dietary improvements among WIC children occurred following WIC food package changes in 2009 including higher scores on the Food Variety Index, lower percent intakes of energy from fat; and meeting the dietary reference intakes for fiber[3]. Child intakes of fruits, vegetables[3,38], and whole grains[3] also improved after the 2009 food package change. Furthermore, dietary intake and home food availability improvements were experienced by African American and Hispanic families with children enrolled in WIC following the 2009 package change[40].

Given the timely concern over the childhood obesity epidemic in the US, lower weights and BMIs among WIC participants has been added to the list of health-related outcomes associated with WIC participation. Children participating in WIC are less likely to show failure to thrive, be at risk for overweight, or be overweight[38]. Obesity reduction among WIC children has been observed post-food package change as well[41].

Along with dietary and weight related improvements, WIC participation has also been linked with better food security status among children. This is especially important given that approximately 15.6% of households with children are food insecure[42] and of those households, more than 35% had incomes falling below the federal poverty level[43]. For every 1 additional WIC visit for children, the odds of food insecurity and hunger significantly decreases, and for those households with initial food insecurity and hunger, one additional WIC visit decreased the odds of any food insecurity[5].

WIC participation is not only linked to nutrition-focused outcomes. Other positive outcomes associated with child participation in WIC include increased cognitive development[8], reduced risk of child abuse/neglect[20], improved child growth, immunization status, as well as utilization of other health services[6]. WIC children are more likely to complete the recommended childhood immunizations compared to their eligible counterparts who are not enrolled in WIC, however results are difficult to extrapolate because it is unknown whether enrollment in WIC preceded vaccination[44]. Studies suggest that children who participate in WIC or whose mothers are enrolled in WIC have a greater utilization of both preventive and curative health care services than nonparticipants. Positive associations were found with WIC participation and well-childcare visits, early and periodic screening, diagnostic, and treatment services, and cost savings from both preventative and curative child care[9,45]. WIC participation also yields positive associations between child mental ability and socio-emotional status[38]. Despite the wide scope of influence and positive outcomes associated with WIC, many individuals who are eligible do not enroll and/or terminate participation prior to their end of eligibility. Given the positive impact associated with child participation in WIC, understanding factors related to perceptions of the

food provided may help provide strategies for increasing participation and retention in the program.

D. DIETARY PATTERNS AND FOOD PREFERENCES OF WIC PARTICIPANTS

Studies reporting the dietary patterns among WIC participants reveal mixed results, but give some insight into the food preferences and diets of WIC caregivers and children. Data from the Feeding Infants and Toddlers Study (FITS) which investigated dietary patterns and feeding practices of children participating in WIC revealed that WIC participants consumed more 100% juice, fruit-flavored drinks, and sweetened beverages than non-participants. WIC participants were less likely to have ever consumed breast milk as well[46,47]. Intakes of milk, infant cereals, and breakfast cereal were similar regardless of WIC status. WIC participants and eligible non-participants' fruit and vegetable consumption was low and the most popular vegetable for both WIC and non-WIC toddlers was potatoes[46]. Interestingly, rather than suggesting WIC food packages offer fruits and vegetables (which were not included in WIC packages at the time of the study), the authors of these studies suggested applications of nutrition education efforts to increase consumption of fruits and vegetables[47]. Current women and children's WIC packages now include cash vouchers for fruits and vegetables, less juice, and a greater variety of whole grains.

Studies leading up to the (2009) Institute of Medicine recommended changes in the WIC food packages indicated that more variety in the packages could better meet the nutrient needs and dietary patterns of families from diverse backgrounds[27]. Cash value vouchers (CVVs) for fruits and vegetables were introduced as part of the package changes for pregnant, breastfeeding, and child participants in WIC. These vouchers can be used to purchase any variety of fresh,

frozen, or canned fruits and vegetables-up to $10.00 per month for women and $8.00 per month for children's packages. Infant packages currently include fruits and vegetables in the form of baby food only, although it could be contested that some caregivers would prefer to feed their infant foods they prepared from fruits and vegetables they choose and prepare themselves. In a cross sectional study of California WIC participants, mothers reported satisfaction with baby food as well as CVVs. However, when given a choice, the mothers reported a preference for CVVs over baby food[48], perhaps indicating that autonomy of choice provided by CVVs is more highly valued than baby food's convenience.

When examining responses to the proposed package changes, a cross sectional study including interviews and focus groups with WIC participants in Maryland, revealed that most of the changes, with the exception of low/no fat milk provisions, were embraced by participants. Many women in the study did not want to switch to low-fat or non-fat milk. The majority of mothers (67%) and children aged 2-4 years old (82%) in the study consumed milk every day, and of those more than half of women and 70% of children reported consuming whole milk[49]. Although committee recommendations on the proposed food package changes included aims to minimize restrictions on participant food choice, the decision to restrict whole milk from packages after the child turns 2 years old was based on features of a diet consistent with the Dietary Guidelines for Americans (DGAs) to reduce saturated fat, cholesterol, total fat, and, in some cases, calories[29] as well as the recommendation to reduce exposure to dioxins and other harmful chemical compounds that can occur through consumption of animal fat[27]. Newer research on the benefits of full fat dairy and its associations with body weight in children and adolescents, however, reveals some inconsistencies with the Dietary Guidelines' recommendation to replace these products with lower fat options. Studies have shown that full

fat dairy does not adversely impact health [50] or weight[51-54] and may improve it [53,55]. Allowing choice in a randomized control intervention trial examining the consumption and preferences of mother's dairy intake resulted in most mothers preferring yogurt to milk (69%) and (89%) wanting to partially substitute yogurt for milk in their WIC packages. Those in the intervention reported an increase in yogurt consumption while not decreasing other dairy consumption compared to controls[56], demonstrating that allowing more dairy choice in WIC could lead to better nutrient consumption among WIC mothers. Expanding choices and autonomy in WIC has improved participant health outcomes[40,41] and providing more choice would improve satisfaction with the program overall[3,49,56].

E. FOOD CHOICE AND THE FOOD CHOICE PROCESS MODEL

E.1. Food Choice in Low-Income Populations

Decisions to keep children enrolled in WIC may be influenced by the principles and values that guide parents'/caregivers' food choice. Although WIC packages provide foods that have been designed to meet the nutritional needs of its participants, little is known about how and why these families value the specific foods in WIC. Understanding the personal food system, food choices, and behaviors of any group or individual is integral when implementing any program or service aimed at improving the nutritional health of the targeted population or person[57]. Studies focusing on specific behaviors related to food choice in low income women with children have identified a combination of personal, economic, and environmental factors that influence food choices. Circumstances of low socioeconomic status, stress, and hectic lifestyles can impact the type and availability of food that we eat from a very young age[49,57-59]. Low income caregivers often times prioritize and negotiate values of taste, cost, health, time, and other people/social

relationships[60]. The caregiver's social place, class, ethnicity, gender, and race can also affect her food decisions and the value placed upon those decisions[61].

Devine et al. found that for low income working mothers, taking on work and family responsibilities places strain and time scarcity on her method and style of feeding her household. For example, a mother's responsibility to adhere to specific time constraints within her work schedule while managing busy household and personal events impacts her ability to plan and think ahead and conform to controlled time[57]. Under these pressures, with limited autonomy and control over time, low-income caregivers must spontaneously figure out the quickest way to manage their household food environment and feeding their children[62]. Work-family spillover affects the food choice coping strategies of low-income parents to the effect that they often must readjust their priorities, plan ahead, or sacrifice physical and mental well-being in order to feed their families[57].

Previous studies have found that parents with limited resources report feelings of less control over their health outcomes[63] and self-efficacy in procuring, preparing, and serving the food they would like to serve to their family[64]. For low-income caregivers, shopping for healthy food can mean transportation problems such as having to make multiple stops and/or lengthy travel times via public transit or unreliable vehicle options[65]. Qualitative interview studies of low-income minority Black and Latina women have also revealed that healthy food shopping behaviors are not only influenced by accessibility, environment, and cost, but also the cooking ability (e.g., skills and knowledge related to cooking fresh vegetables) of the caregiver[66]. Despite the multiple barriers to healthy food choices (e.g., availability of healthy foods, motivation, and food management skills), when disadvantaged women were asked if they could change one thing to

improve their own health and/or the health of their family, the most frequent response was the need for more time[62].

Parents and caregivers are considered to be the gatekeepers to children's dietary intake, therefore are key informants when inquiring about children's dietary practices and dietary health in general. Caregivers can influence children's intake in the home, and where food is purchased [67]. Caregivers can also influence children's diets through their own dietary behaviors since children are more inclined to prefer the foods that the people around them eat[68]. Evidence also suggests that caregivers', particularly mothers', food choices can determine what the child likes and dislikes by whether or not a food is made available in the home or whether the child is exposed to certain foods on a regular basis[69-71]. Parental food choices and susceptibility to exhibit negative affect have also been shown to influence children's temperament and willingness to try new foods[72-74]. Parental feeding style may also influence the way children eat. For example, restrictive feeding practices may be associated with child eating behavior and weight status[72,75] and can lead to children's increased requests and preferences for highly palatable, energy-dense foods[76]. Although caregivers can play a key role in the dietary health of children, disparities in resources, uncertain access affordable healthy food, personal family stressors, and time constraints impact low income families' abilities to feed themselves and their children in a healthy way[77-79]. Since dietary intakes of young children are closely linked to caregivers' preferences and feeding practices, efforts to improve child nutrition programs must involve understanding food choice from the caregiver's perspective. This dissertation will gain a clearer understanding the social, cultural, and environmental factors that contribute to child caregivers' perceived value of specific WIC foods as well as the packages as a whole.

Understanding the role of caregivers' food related behaviors through their life course events and experiences could help better inform efforts aimed at keeping children enrolled in WIC.

E.2. Food Choice Process Model

Most health and nutrition professionals use rational models in attempts to influence how people make food decisions[80]. Although most studies have shown that food choice decisions are primarily based on the context of time, cost, convenience, habit, and short term sensory pleasures, previous studies have shown that the Food Choice Process Model can potentially offer a more in-depth understanding of the food preferences of participants in WIC [81,82].

The way individuals make food decisions for themselves and their families is influenced by a variety of factors framed by their life course and changeable trajectories[61]. Many studies have sought to explain food decisions through behavioral and cognitive processes in combination with internal physiological processes such as hunger, appetite and satiety.

Researchers have proposed that food decisions are driven by behaviors that fall into 3 categories: 1) hedonic (based on short term sensory pleasures), 2) utilitarian (based on longer term gains of health, wellness, usefulness, and fuel), and 3) heuristic (dependent on context of time, cost, convenience, and habit)[80]. Rational models assume that people are able to make mostly utilitarian decisions based on their preferences for health and wellness, and that they can make the best choice available to them in equilibrium. Although most studies have shown that hedonic, and heuristic mechanisms drive food choice decisions[81,82], health and nutrition professionals still tend to use rational models in attempts to influence how people make food decisions[80].

When making choices about food, individuals tend to use more automatic processes such as habits or behavior cues than ones that require reflection on one's intention or negotiations with

oneself[83]. These automatic processes are multifaceted, being further complicated by levels of stress[84], impatience[85], perceived sensory appeal, "rules of thumb"[82], and the food environment in which these decisions are being made[86].

Within a person's life course their ideals, personal factors, social factors, and resources also have an influence on their own personal food system[14]. Negotiations of values within this personal food system will lead to the strategies they use to choose food for themselves and their families[60]. In-depth qualitative research examining individuals' food choice capacity has revealed that the standards for how people feel they should eat are based on their life course events and circumstances. For those facing challenging and changing events in their lives, food management skills (e.g., physical and mental ability to keep foods costs down and prepare meals) are linked to higher self-esteem and higher levels of food choice capacity[81]. Prioritization of conflicting values (time vs. health) and finding strategies for balancing these conflicting values (e.g., choosing the healthier option from the convenient foods available) are ways people manage values within their personal food systems[60]. A graphic depiction of the Food Choice Process Model can be found in Appendix II.

Currently we are aware of the environmental, societal, and behavioral influences that influence food choices and eating behavior[60,87,88], but few standardized tools exist that gauge the motivations behind eating behaviors across groups. A recent review of studies focusing on decision making and eating behaviors recommends that future research should aim at creating more standardized and validated tools for assessing eating behaviors (in children and adults alike), be more longitudinal in nature[89], and be driven from multiple levels or dimensions shaped by the person's life-course[61].

CHAPTER III: SPECIFIC AIMS AND METHODS

A. SPECIFIC AIMS

The purpose of this study is to better understand the social, cultural, and environmental factors that contribute to parents/caregiver perceived value of the food packages in WIC.

Specific aims of the study were to:

1. Assess preferences and perceived value of the foods provided in WIC among parents/caregivers of children participating in WIC.
2. Understand the social, cultural, and environmental factors that influence WIC parents/caregivers preferences and perceived value of the foods and food packages provided in WIC.
3. Explore how food choice in low-income WIC caregivers can be explained using the Food Choice Process Model

B. STUDY DESIGN

This dissertation builds on a larger study to evaluate the pilot 'WIC to 5' *program*. WIC to 5 is an intervention study to increase WIC participation and retention among eligible children in Illinois. Employing a quasi-experimental design, WIC to 5 includes activities to improve client awareness of WIC benefits, increase staff empowerment, improve staff/client interactions, improve image/understanding of WIC among health care and childcare providers, and provide outreach and training to WIC vendors. A total of 8 WIC agencies in Illinois are participating in the study (4 treatment sites/4 control sites). At the time of this study, the parents of one hundred and thirty-eight 3-6 month old infants were recruited to participate in a baseline interview. The recruitment script, eligibility, and informed consent forms for the 'WIC to 5' study can be found in Appendices III-V. This current study uses the baseline survey data to address Specific Aim 1

and in-depth interview data from a subsample of participants to address Specific Aims 1, 2, and 3. This project's most recent continuing review was approved by the University of Illinois Institutional Review Board via expedited review on August 25, 2016 and can be found in Appendix VI. This larger study's survey includes several demographic, social, cultural, and environmental measures aimed at predicting parents/caregivers' intention to stay in the WIC program (Appendix VII), as well as a 'WIC Food Preferences Questionnaire' (Appendix VIII), and a measure for WIC parents/caregivers' value of WIC food packages (Appendix IX).

C. STUDY SITES

The WIC to 5 study includes four intervention sites: the McLean County Health Department, Macon County Health Department, Vermillion County Health Department, and the Roseland Hospital WIC clinic and 4 comparison sites: DeKalb County Health Department, Kankakee, County Health Department, Peoria County Health Department and Mt. Sinai Hospital WIC clinic. The sites chosen for this study were matched on demographic and caseload profiles and were selected based on high and low child retention rates. The racial make-up and caseload profiles of each site can be found in Appendix X and XI respectively.

D. PARTICIPANT RECRUITMENT

Parents/caregivers age 16 or older with children aged 3-6 months who participate in WIC were recruited at 8 different WIC agencies across the State of Illinois for a longitudinal intervention study about WIC retention. Participants understood they would be contacted and surveyed at 4 time-points; however, this dissertation only includes baseline survey data. Participants were recruited using passive and active strategies including direct contact, flyers, and an introduction to the study at WIC nutrition education classes. All data collectors recruited participants in compliance with Federal Human Subjects Regulations and eligible

parents/caregivers were required to complete informed consent. Participants received $20.00 for completing each survey.

From the group recruited at baseline, a subsample of participants was purposively recruited via phone to participate in an in-depth interview about WIC foods. An in-depth interview recruitment script can be found in Appendix XII. Interview participants completed informed consent and agreed to be audio recorded (Appendix XIII). Interviews were conducted in a private area within the WIC clinic or in the participants' home by a trained qualitative researcher with experience interviewing WIC participants. Participants received an additional incentive of $20.00 for completing the interview. Participants engaged in interviews lasting approximately an hour. This study was submitted as an amendment to the larger 'WIC to 5' Study and was reviewed and approved by the University of Illinois Institutional Review Board via expedited review on February 15, 2016 (Appendix XIV).

To obtain a sample with diverse characteristics, maximum variation sampling, a type of purposive sampling strategy described in Patton (2002) was used for the in-depth interviews. The goal of purposive sampling is to gather information rich data from each participant in order to understand a phenomenon in depth[90]. Purposive sampling is a process that aims to select research participants on the basis of their relevance to the research. The participants are selected because they can provide data that are information rich; they offer useful manifestations of the phenomenon of interest. Sampling is therefore aimed at the research question, not empirical simplification[90]. Qualitative studies derive power from this in-depth understanding, whereas more quantitative methods depend on larger samples and derive power from the large numbers and probability sampling from which one can make generalizations[90]. Theoretical sampling continues and repeats until the data analysis reaches saturation[60]. This sampling method was

employed to garner information from interview participants that varied by ethnicity, age, socioeconomic status, household composition, employment status, formula use, breastfeeding status/ experience, and overall WIC experience. These and other demographics were tracked for each participant as they were recruited.

E. DATA COLLECTION

E.1. Survey Measures: WIC Food Preferences and Values

A WIC Food Preferences Questionnaire was developed to measure the perceived value of foods that are available in the different WIC foods packages. Participants were asked to rank on a 5-point Likert scale their preferences for each WIC food (1), 'very much dislike' being the least preferable and (5) 'very much like' being the most preferable. Participants were given this questionnaire at baseline (when their child was 3-5months old).

Participants were also given a value oriented questionnaire at baseline. This questionnaire asked them to reflect on the monthly cost (in dollars) of each WIC food package at different time points throughout participation (e.g., package during pregnancy, package during infancy, and child's package) and whether it is worth the time and effort to stay in WIC at each time point.

E.2. In-Depth Interviews

Qualitative research investigates how and why individuals act in certain ways; therefore it is highly suitable to answer complex questions about individuals' value systems around health and food-related behavior[91]. Qualitative research often relies on a *relativist* rather than *realist* ontology wherein answers and solutions come from social constructs (e.g., how a person perceives and thinks is influenced by cultural, historical, and environmental factors) rather than the existence of a single reality caused by an isolated factor [92]. Qualitative methodology therefore, can assist researchers to move beyond their way of thinking and be open to the

participants' experiences and perceptions, thereby helping service providers, and program developers care for their patients and populations. Rich data from interviews or focus groups can answer questions by providing a deeper view into concepts perhaps not previously considered. A current review of the qualitative research examining how individuals interpret healthy eating asserts that social, cultural, and environmental factors influence food behaviors. As such, in-depth qualitative research about these food behaviors and value systems can reveal implications for health recommendations, interventions, and program evaluation that include but are larger than the outcomes provided by quantitative research approaches[93]. Understanding caregivers' food preferences, lifestyle, and experiences in their own words can help policy makers improve the WIC program and better inform efforts aimed at keeping children enrolled in WIC.

In-depth interviews were guided by a constructivist approach in which the aim of the researcher is to explore individual participants' perceptions and experiences, capture processes, and document variations within these perceptions, experiences, and processes. Constructivist inquiry provides an opportunity to gain a more detailed understanding of multilevel processes by allowing participants to report their own views and not limiting them solely to the researcher's conceptualization of the issues [94]. The study was also guided in part by inductive reasoning in that the results are derived from the data itself rather than applying a hypothesis to the data and using the data to confirm or reject the hypothesis[92].

In-depth interviews were conducted with several open-ended research questions in the form of a semi-structured interview protocol informed by formative research on the barriers and facilitators to using WIC services [13,95]. The protocol was developed with a constructivist method in mind so as not to purposely introduce bias. The interview protocol focused on dimensions related to food choice, motivations and values behind eating behavior (e.g., nutrition, health,

convenience, time and other levels of influence for low income families as described within the food choice literature) [57,61,62,64,65,81,82,96-98], as well as child retention in the WIC program. Certain topics, however, such as hectic lifestyles, food preferences, cooking skills, and other program use like the Supplemental Nutrition Assistance Program (SNAP) [37,57,62,69,99] were anticipated from the literature on barriers to using WIC services and were included in the interview protocol as a guide. The in-depth interview protocol can be found in Appendix XV.

F. DATA ANALYSIS

F.1. Survey Analysis

To quantify WIC food preferences, preference frequencies were tabulated at baseline for all participants in the larger 'WIC to 5' study. Favorable food ratings ('like' and 'very much like') for each WIC food were tabulated for each participant group. Frequencies were compiled to calculate the percent of participants that gave each WIC food a favorable (rating of 4 or 5) and unfavorable (rating of 1 or 2). To quantify WIC food package value, frequencies were tabulated at baseline for all study participants who had been enrolled in the longitudinal study at the time of this project. For each WIC food package, the percent of participants that rated food package worth < $100 was calculated, as well as the percent that 'did not know' the worth of each package. The percentage of participants that agreed it is worth the time and effort to stay at each time point was also calculated. Data analysis was conducted using the SPSS [15]statistical software program.

F.2. Analysis of In-depth Interviews

In preparation for data analysis, interview audio files were transcribed verbatim. The same person who conducted the interviews transcribed the audio files to ensure accuracy; however,

transcriptions were double-checked and edited for accuracy by a third party (graduate level dietetics students). Prior to coding, the interview transcripts were read several times to obtain a clearer understanding of issues discussed within each participants' interview. Interview transcripts were then formatted to be input into Atlas.ti, a computer program for managing qualitative data to aid in the coding process[100]. Each case transcript (called a document in Atlas.ti) was placed in several document groups according to interview site, ethnicity, infant feeding type, and number of children.

Analysis of the interviews was guided by the constant comparative method outlined by Glaser and Strauss, 1967[101] and Strauss and Corbin, 2008[102]. Constant comparative analysis aids in the discovery of meanings, social processes, and social interactions as they emerge from the data [101,102], comparing incident with incident in order to classify and group conceptually similar themes while identifying properties and dimensions specific to that category/theme [102].

Using Atlas.ti, transcript text was broken down into smaller conceptual text units (e.g., sentences and paragraphs), labeled and coded according to their meaning (open-coding). Interviews were coded for emergent themes by the interviewer. A single coder completed code agreement, categories, and themes with the oversight of an experienced qualitative researcher with expertise in nutrition, the WIC program, and health equity research. A list of codes and code groups was updated and maintained throughout analysis. To better understand the relationships between food preferences, perceived value of WIC foods, and retention of child participants in the WIC program, an inductive coding process was used to code emergent themes from the caregiver interviews (axial coding). Codes were then queried via key words, like groupings, and other identifiers then compared within and between transcripts. Categories pertaining to those that emerge from the interviews and those anticipated from the literature and

semi-structured interview protocol were combined according to similar phenomena in order to develop a final list of categories. The category system was then reviewed and compared to the data many times to determine relationships between constructs/themes. The caregivers recruited to participate in the in-depth interviews vary case by case in their personal food systems; however, some of these cases share a common perspective or worldview, which informed the units of analysis for each case study and comparison. Attention focused on themes that emerged from case comparisons that were geography focused (e.g., urban vs. rural, differences in shopping markets, neighborhoods, etc.), activity focused (critical incidents, celebrations, events, crises, etc.), and time based (e.g., season based, schedule based, weeks, months, periods of child development, etc.)[90]. The themes were extracted to examine the relationships between food preferences, perceived value of WIC foods, and retention of child participants in the WIC program (selective coding).

In order to further elucidate important findings pertaining to participants' value of WIC foods, themes, and patterns that emerge from the data were also constructed into typologies[90]. These typologies were classified based on participant characteristics, family structures, food behaviors, as well as other unanticipated aspects within the participants' personal food system. Typologies were also classified along a continuum of value or importance placed on certain WIC foods and/or the WIC food package itself. For aim 2, themes were organized and integrated into a conceptual framework to illustrate the barriers and contributors to the perceived value of WIC food packages. For aim 3, codes and themes were organized and individual case studies were developed to offer a deeper theoretical understanding of low-income WIC parents' food choices using the FCP model.

Trustworthiness and quality of the interview data was evaluated using Lincoln and Guba's evaluative criteria [94] including prolonged engagement (remained on site at WIC clinics throughout the course of the study, and formative research process which began in 2011), persistent observation (staff and client interactions in all areas of the clinic), triangulation of sources (survey questionnaire data), peer debriefing (reports and calls with the WIC State Agency and WIC staff as well as presentations of the ongoing research at professional conferences) , dependability audits (observations of 3 participant interviews by graduate level masters students that validated the data collection process and analysis findings), as well as negative case analysis [90].

CHAPTER IV: RESULTS: PARTICIPANT SAMPLE CHARACTERISTICS

The racial/ethnic breakdown and geographic location of the sub-sample participants reflected that of the larger study at the time of data collection with 61% Black participants and 32% residing in Urban areas. Similar to WIC enrollment nationwide, most of the participants used infant formula (71%). Participants were initially purposively sampled to gain a variation in ethnicity, parity, infant feeding method, and WIC experience. Only 2 Hispanic participants were recruited and both used infant formula; however, one did initiate breastfeeding and continued for 2.5 months. Most sub-sample participants (90%) had 1-3 children, 1 participant had 4, one had 5, and one had 7 children. Participants' children's ages ranged from 2 weeks to 17 years. Only one participant had given birth to another infant after being recruited into the parent study. All participants with more than 1 child had previous experience with other children in the program. The characteristics of the larger sample and the sub-sample can be viewed in Tables I and II respectively.

TABLE I: SURVEY PARTICIPANT DEMOGRAPHICS

Survey Participant Demographics (n=138)
Infant Feeding Method
-Fully breastfed n=16 (12%) -Partially breastfed n=12 (9%) -Formula n=110 (79%)
Race/Ethnicity
-Black n=87 (63%) -Hispanic n=7 (5%) -White n=37 (27%) -Mixed Race/Other n=7 (5%)
SNAP Recipient n=108 (78%)

TABLE II: SUB-SAMPLE PARTICIPANT DEMOGRAPHICS

In-Depth Interview Participant Demographics (n=31)
Infant Feeding Method
-Fully breastfed n=9 (29%) -Partially breastfed n=1 (3%) -Formula n=21 (67%)
Race/Ethnicity
-Black n=19 (61%) -Hispanic n=2 (6%) -White n=9 (29%)
SNAP Recipient n=26 (83%)

CHAPTER V: RESULTS AIM 1: FOOD PREFERENCES AND VALUE OF THE WIC FOODS AMONG CAREGIVERS OF CHILDREN PARTICIPATING IN WIC

A. PERCEIVED VALUE OF WIC FOODS

Participants' value of the WIC food packages analyzed from the survey data is illustrated in Table III. Over half of the 138 surveyed participants at baseline (58%) estimated the WIC infant package to be worth more than $100, while nearly a quarter of the participants thought the WIC women's package (26%) during pregnancy and WIC children's package (28%) to be worth more than $100. Many participants also stated they 'don't know' how much the WIC women's package during pregnancy (21%) and WIC children's package (25%) are worth, while almost all participants (93%) knew the worth of the infant food package. Most of the participants agreed it is worth the time and effort to stay in WIC for the infant (91%) and pregnant women's package (70%), while a lower number (36%) of participants agreed it is worth the time and effort to stay for the children's package.

TABLE III: SURVEY DATA: PERCEIVED VALUE OF WIC FOOD PACKAGES

Participants' Perceived Value of WIC Food Packages (n=138)			
Type of package	**Worth > $100**	**'Don't know'**	**Worth the time and effort to stay in WIC**
Pregnant Women's Package	26%	21%	70%
Infant Food Package	**58%**	7%	**91%**
Children's Food Package	28%	25%	**36%**

Results from the qualitative interviews supported the results from the perceived value questionnaires. Although the retail value of the child package is worth less than the infant package containing formula, a contributing factor to the perceived value of these packages is the time and effort it takes to acquire them at the clinic and at the store. Participants suggested it might not be worth the time and effort to remain in the program once the child eats "real food". Some parents felt they should be able to provide for their child after infancy.

> *The parents should have it all together. You shouldn't really need WIC anymore. They're practically a little adult now. They don't need formula.* ***Caregiver age 21.***

A quarter of the participants reported they did not know how much the child package is worth; this was reflected in the interview dialogues as well. Several participants were unsure, uninformed, or ambivalent about the children's packages.

B. PREFERENCES FOR WIC FOODS

Results from the WIC Food Preferences Questionnaire triangulate the findings in the in-depth interviews and are displayed in Tables IV and V respectively.

TABLE IV: SURVEY DATA: FAVORABLE WIC FOOD RATINGS

Favorable WIC Food Ratings (n=138) (%= % of participants rating whether they would 'like'/ 'very much like' receiving that food)												
WIC Food →	Infant Formula	Baby Food	Infant Cereal	100% Juice	Fresh F&V	Frozen F&V	Canned F&V	Brown Rice	Peanut Butter	Beans	Whole Milk	Skim Milk
Total	94%	95%	80%	93%	**99%**	88%	81%	**59%**	89%	70%	87%	**49%**

TABLE V: SURVEY DATA: UNFAVORABLE WIC FOOD RATINGS

Unfavorable WIC Food Ratings (n=138) (%= % of participants rating whether they would 'dislike'/ 'very much dislike' receiving that food)												
WIC Food →	Infant Formula	Baby Food	Infant Cereal	100% Juice	Fresh F&V	Frozen F&V	Canned F&V	Brown Rice	Peanut Butter	Beans	Whole Milk	Skim Milk
Total	4%	5%	3%	1%	**<1%**	3%	5%	**23%**	5%	13%	87%	**33%**

B.1. Foods Provided for Infants

B.1.i. *Infant Formula*

Foods in the infant package (infant formula, baby food, infant cereal) were rated highly by survey participants at baseline. Infant formula was valued highly among 94% of all participants and was valued highly by 100% of those who identified receiving the full formula package for their child. Interviews illustrated that for these families, prioritization of infant formula and the infant package over other WIC foods and packages occurred due to the exorbitant cost of formula. Participants tended to know exactly how much infant formula would cost if they had to pay retail value and were grateful for WIC benefits.

> *The most important thing is the fact that she gets milk. You know, the baby formula that she needs because that is very expensive. So I can just imagine without WIC, we probably wouldn't have food cause then of course it all depends on your income or how much food stamps they give you, but those little cans of formula almost cost $18 a pop.* ***Caregiver age 35***

B.1.ii. *Baby Food*

Overall, participants in all groups rated baby food in the infant package highly; 95% of survey participants indicated that they would very much like to receive baby food from WIC. Interviews indicated that for many parents, baby food was considered as a convenient but less nutritious option to feed their infants. Some parents voiced concern about their child's health and preferred to make their own baby food. Parents described the desire to feed their children the solid foods they were eating rather than pureed baby food. Participants often talked about baby food going unused by the child for whom it was intended, and that it would be more useful if given earlier in their infant's life. Many participants cited their own intuition or recommendations from healthcare providers that their child was ready to start eating solid food before 6 months of age.

> *They want solid foods. I think it could have been nice [to get baby food earlier], you know cause I started it when he was right at 5 months because my doctor said anytime between 4 and 6 months is ok. He said when he really starts watching you eat that's when it's time. And he really started watching me eat and so um yeah I felt like it was time. So yeah if they could have maybe move it up even a month, you know I think it would be helpful.* ***Caregiver age 31***

B.1.iii. *Infant Cereal*

Infant cereal is provided in WIC infant packages after 6 months of age. Most participants at all sites (80%) ranked infant cereal favorably at baseline (before their child was receiving it in WIC). Several interview participants spoke about using infant cereal to "thicken bottles" to keep their children "full and content" and one participant mentioned this practice helps her keep her child asleep through the night. Many parents in the interviews mentioned they did not view the infant cereal as useful or nutritious and preferred to give their child "real food" after the age of 6 months as was reflected in the themes about baby food.

> *With her I didn't even give her those cereals because I mean, it's just calories that fill them up with no nutritional value. So, you know like cereal went to waste for me.* ***Caregiver age 32***

B.2. Food Provided to Women and Children

B.2.i. *Fruits and Vegetables*

The WIC Cash Value Fruit and Vegetable Voucher allows participants to choose freely the type of produce they wish to feed themselves and their families. Survey participants valued getting fresh fruits and vegetables in their WIC food packages the most (99%), and this was reflected in the in-depth interviews also. Participants enjoyed selecting the fruits and vegetables they prefer and many spoke about strategies to expand the value of the voucher by shopping for fruits and vegetables that were in-season or using the voucher solely toward their household fruit budget because *fruit is more expensive (****Caregiver age 32).*** This value was compounded for

those who especially liked fruits and vegetables and whose children liked fruits and vegetables. Participants that had older children who were enrolled in WIC prior to 2009 when the package changes occurred could recall when there was no fruit and vegetable CVV and how much better the program is now.

> *The fact that they added vegetables and fruit was a good thing. I love that. That was good, cause vegetables and fruit are expensive especially when you're trying to get the more fresher kind.* ***Caregiver age 35.***

Survey participants favored receiving frozen and canned fruits and vegetables slightly less than fresh; however, interview participants stated the frozen and canned varieties did save them time and lasted longer than fresh, which added value.

> *I much prefer my canned [vegetables]. So you have a lot more ready-made easier to make for myself.* ***Caregiver age 27***

B.2.ii. *Whole Grain Choices*

Most participants appreciated grain choice in the program. Among survey participants, preferences for whole grain items varied, and brown rice was among the most unfavorable foods (23%). However, results from qualitative interviews indicated that if one type of grain was disliked in the household, most families were content with a different option such as oatmeal, tortillas, or whole wheat bread. If participants did have any issues with grain choices in WIC, interview results revealed this was because it wasn't the type of food they were accustomed to eating. For example, if participants were used to eating white bread and/ or white rice, the grain options were less valuable to them.

> *We don't do wheat bread here at the house. We do the white bread. Sometimes I just don't grab it. I prefer to not grab it than for it to come home and nobody eats it and just throw it away or just goes to waste.* ***Caregiver age 25***

Conversely, if a participant was 'raised' on healthier whole grain foods, and knew how to cook with them (e.g., brown rice), the choices in WIC were valuable and useful to the household. One

participant commented on the importance of choice and suggested additional whole grains that are culturally appropriate for many participants but aren't provided in WIC:

> *People that's trying to make WIC actually work for them deserve to get an option of certain things. They could be the same things like wheat bread or oatmeal- you know something that- grits is a good food for a lot of African Americans- like to eat, you know they grew up on.* ***Caregiver age 35***

B.2.iii. *Peanut Butter and Beans*

WIC also offers the choice between peanut butter and beans in the women and children's packages. Participants tended to favor peanut butter (89%) over beans (70%) in WIC and found it useful; however, it wasn't a high priority food for many, and several interviewees did mention the peanut butter would accumulate in their households because it wasn't used at the rate WIC provided it each month. Some participants voiced that WIC is restrictive when it comes to type and brand of peanut butter allowed. Participants also found it confusing that peanut butter was offered in WIC when they were informed that young children shouldn't have peanut butter due to allergy or choking risk.

Similar to statements about brown rice, beans were valued more frequently when participants knew how to cook with them. Alternatively, many WIC participants aren't accustomed to cooking dry beans and perceive that the process of soaking and cooking beans to be too much. Some participants simply did not value beans because they don't like them or don't know what to do with them.

B.2.iv. *Breakfast Cereal Choices*

Similar to the themes about grain choices in the program, breakfast cereal value was variable among survey participants. Interview participants that were accustomed to eating the type of cereals in WIC had children who demonstrated mirroring behavior and ate these cereals also. On the other hand, and similar to the opinions about whole grains in WIC, some

participants felt the breakfast cereal options were bland, 'too healthy', not sweet enough, and restrictive. Many caregivers who mentioned that they themselves prefer sweeter cereal had children that also preferred sweeter cereal. While some participants considered the breakfast cereals in WIC to be too healthy, others didn't believe they were healthy enough citing certain sweetened cereals allowed in WIC like frosted shredded wheat.

B.2.v.*100% Juice*

Juice also was a popular and valuable item among many of the participants. Survey participants strongly favored receiving 100% juice in their packages (93%). Interview participants reported enjoying juice themselves as well as their children. A few participants were aware of the high sugar content of juice and considered it to be an unhealthy item that was allowed in WIC. Some participants reported that they and/or their children shouldn't drink as much juice as they do and spoke about the detrimental effects juice can have on children's dental health.

> *WIC is always trying to tell us about rotten teeth and giving them sweets, but then they give him a bigger juice thing than you give the actual adults. So, I look at it as just kind of backwards.* ***Caregiver age 21***

B.2.vi. *Milk*

WIC offers whole milk to children at age one. Once the child turns two years old, skim or low-fat (1%) milk is only allowed in the child's package, unless there is a doctor's note. Less than half (49%) of survey participants rated skim/1% milk favorably and 33% rated skim/1% milk unfavorably making skim/1% milk the most unfavorable WIC food item among survey participants.

Milk preferences were a major theme mentioned among interviewees as well. Several participants mentioned they would prefer to have a choice about the type of milk they receive from WIC and most participants said they would choose 2% or whole milk. Some participants would donate the low-fat/skim milk, give it away to others, or not redeem their vouchers for low-fat/ skim milk and purchase their preferred type of milk with other resources. Some participants stated that they did not like or prefer dairy milk in general. WIC does offer soymilk in its women's packages, however some wanted coconut milk or almond milk. Some participants' children didn't consume much milk and one participant in particular stated she did not want her daughter to consume dairy milk once she turns one and was disturbed by the thought of anyone giving her daughter cow's milk. These factors of milk preference influence perceived value of the food packages and WIC in general.

> *I donate the [skim milk] or I just don't pick it up. Most of the times I buy a half-gallon of whole milk because we don't drink the skim or the 1%. I'm sorry, but who really drinks skim milk or 1% you know?* ***Caregiver age 32***

Participants' milk preferences were often rooted in what they are accustomed to or what tastes good to them. In some households, skim milk was utilized but at the cost of sound nutrition. One participant mentioned her child not liking lower fat milk, but being able to use it if she mixed it with chocolate milk powder or served it with cookies. Low-fat milk became a vehicle for excess sugar in the child's diet.

Furthermore, several participants were aware, or learned from WIC itself that their one-year-old child needed the fat in whole milk for brain development. Some participants were then perplexed when their older child was restricted to low-fat milk at age 2 and were not given an adequate explanation for why their child shouldn't continue to drink full fat milk for their health. Some participants received the explanation that lower fat milk is healthier, but this seemed

contradictory or unsatisfactory to some participants. Some participants held the belief that whole milk is healthier.

B.3. Taste Preferences for WIC Foods

WIC foods were less valuable to parents and children who reported being picky eaters, prefer sweet tastes, and eat un-healthfully in general. Although no participant mentioned leaving her fruit and vegetable voucher unredeemed, some interview participants reported disliking the taste of vegetables. Caregivers who identified themselves as picky eaters when it came to eating vegetables also tended to be those that preferred sweeter breakfast cereals and juice in WIC. These caregivers also identified their own tendencies to eat "junk food" and make un-healthy choices. For these caregivers, the value of the program tended to be lower and some even mentioned leaving the program if their households didn't prefer WIC foods:

> *I left WIC because my son had become kind of picky with his food, and the WIC was just not cutting it with what he wanted. I just finally said I'll just take him off of it and just worry about my food stamps. [WIC] just didn't provide what I needed at that time. So it was just, it wasn't worth it at that point.* ***Caregiver age 37***

C. DISCUSSION

Participants reported valuing the WIC infant package and are more aware of the value of the WIC infant package than other packages in WIC. This was primarily due to the high cost of formula for families that rely on infant formula. An economic analysis of formula and breastfeeding in the WIC program reveals the retail price of infant formula does drive up the value of these packages for the first 6 months of the child's life [35]. Data from the Feeding Infants and Toddlers Study (FITS) which investigated dietary patterns and feeding practices of children

participating in WIC revealed that WIC participants were less likely to have ever consumed breast milk [46,47].

The value of the infant package is also demonstrated by participants' responses about whether it is worth the time and effort to stay in WIC for each package. Survey participants reported that they liked to get baby food and infant cereal in the infant package, but that it often came too late in the child's life after their child reached a point in development where he or she became more independent in feeding and wanted to hold and touch their food. Other studies show similar results and revealed that intakes of infant cereals were similar regardless of WIC status [46,47]. Currently, the American Academy of Pediatrics recommends introduction of solid foods around 6 months of age, but recognize that "A substantial number of families introduce complimentary solid foods around 3-4 months, especially if the infant is perceived as fussy"[103]. When asked if they would prefer baby food or a cost neutral expanded fruit and vegetable voucher, every participant in this study stated she would prefer the latter. These findings are not new and were demonstrated in a previous study about mothers' preferences of fresh fruits and vegetables over baby food fruits and vegetables in the new (2009) WIC packages. In this study, 2/3 of mothers of WIC infants stated they would also prefer CVVs for fruits and vegetables to baby food [48].

Previous studies on participant satisfaction with the new (2009) WIC packages revealed mixed results. A recent phone-interview survey study with 2,996 WIC participants in California showed that participants were satisfied overall with the new package changes and the amounts of foods provided in the packages. Participants in this study; however, were not asked about their opinions/satisfaction with whole or 2% milk restrictions, only whether they were satisfied with low-fat milk and the amount of low-fat milk provided. Participants of children aged 1-2 (who

would be receiving whole milk in WIC) were excluded from this studies' results[104]. Other study that included participants' perceptions on whole milk found that most women and children consumed whole milk and did not want reduced-fat milk. This cross sectional study including interviews and focus groups with WIC participants in Maryland, revealed that many women in the study did not want to switch to low-fat or non-fat milk. The majority of mothers (67%) and children aged 2-4 years old (82%) in the study consumed milk every day, and of those more than half of women and 70% of children reported consuming whole milk[49]. Preference for whole and 2% milk among WIC participants has been referenced previously, yet WIC remains restrictive when it comes to allowing full fat dairy options for women and children over age 2. The content of WIC food packages for women and children is supposed to reflect the recommendations set forth by the DGAs, which recommend low-fat dairy choices[29] despite recent and growing evidence that full fat dairy does not adversely impact health [50] or weight[51-54] and may improve it [53,55].

Participants in this study enjoy the juice provided in WIC; however, many are aware of the adverse consequences it poses on their children's health[105,106] and dental health[107]. WIC has removed 100% juice from infant packages and reduced it in women and children's packages, but still allows 128oz of juice per month for children and 96-144oz in women's packages. This occurs despite the Dietary Guidelines for Americans (DGAs) acknowledgement that young children should consume no more than 4 to 6 fluid ounces of 100% fruit juice per day because it contributes extra calories when it is consumed in excess[29], which is the case for many WIC children[46]. Data from the Feeding Infants and Toddlers Study (FITS) which investigated dietary patterns and feeding practices of children participating in WIC revealed that WIC participants consumed more 100% juice, fruit-flavored drinks, and sweetened beverages than non-

participants. A previous study has shown that participants, although satisfied with the juice provided in WIC, were also satisfied in general with the decrease in the amount of juice provided in the women's and children's packages[104].

The desire for choice in the WIC program surfaced repeatedly from participants, and where choice was offered, the program was valued. Cash value vouchers for fruits and vegetables have addressed the desire for autonomy in food choice in at least one WIC food category; other study participants reported that purchasing food items with CVVs made the WIC experience worth the effort each month [36]. In this study, fresh fruits and vegetables received the highest favorable rating, while canned and frozen fruits and vegetables received a slightly lower favorable rating but were valued due to convenience. Other studies have shown similar results with satisfaction with fruits and vegetables provided in the program following the 2009 package change[48,104] as well as with preferences for fresh fruits and vegetables, while valuing canned and frozen varieties for convenience and cost[108]. Before the fruit and vegetable voucher was introduced to the WIC food packages in 2009, a previous study on the dietary patterns and feeding practices of children participating in WIC revealed WIC participants and eligible non-participants' fruit and vegetable consumption was low and the most popular vegetable for both WIC and non-WIC toddlers was potatoes[46].

Other studies revealed satisfaction with grain choices and whole wheat bread among WIC participants [104,108]. Participants of the Maryland Food Preference Study agreed that whole-wheat bread is more healthful than white bread and reported that they (59%) and their children (51%) would increase consumption if provided by WIC [108]. Similarly, participants of this study found the grain choices in WIC favorable and considered them to be healthy; however, those who were

accustomed to consuming whole grains were the participants who stated they preferred them to refined varieties.

Participants in this study favored peanut butter over the choice of beans; however the interview results revealed that participants who were familiar with cooking beans favored beans more than those who were not accustomed to cooking with or eating beans in general. These results are similar to the findings in the Maryland Food Preference Study where non-Hispanic participants in the study preferred peanut butter over beans. Hispanic participants in this study also reported that they (44%) and their children (57%) would consume more beans (substituting for peanut butter) if provided by WIC [108]. This finding aligned with the Hispanic participants' preferences in this study also; however only 2 Hispanic participants were recruited for interviews, leaving this result to warrant further exploration.

Overall, choice was appreciated in the grain, breakfast cereal, and protein categories in this study; however, many participants still felt strongly about the restricted milk options. Expanding choices and autonomy in WIC has improved participant health outcomes[40,41] and providing more choice would improve satisfaction with the program overall[3,49,56].

This study is not without limitations. Food preference data gathered in Illinois and may not be generalizable to WIC participants in other states or at the national level. Certain states allow reduced fat (2%) as well as low-fat (1%) and non-fat milk in WIC packages. Illinois WIC and many other states do not allow 2% milk in packages for women and children over age 2. In addition, Hispanic participants were underrepresented in our sample. Because the focus of this study was qualitative in nature, survey food preference data was captured at the time all in-depth interviews were completed which limited the sample size of survey participants from the longitudinal on-going quantitative parent study. Final quantitative results may vary or achieve

greater power once the study is completed; however, participants' own words about their food preferences and value of the packages remain important in informing future interventions and policy aimed at improving the WIC program.

D. IMPLICATIONS FOR RESEARCH AND PRACTICE

Most participants value the food packages in WIC, but value the women and infant packages more before the child turns one due to the greater cost savings those packages provide. The fruit and vegetable voucher provides participants less restrictiveness and more choice in the program and has increased the value of the program for many participants. If given a choice between an expanded fruit and vegetable voucher and baby food, fewer vouchers would go unredeemed, and less food would go to waste from the program. WIC may be able to retain more families in the program after the child turns one and reduce program benefits from going to waste if other food category choices are also expanded, namely for unrestricted type of milk in the packages for women and children after age 2.

CHAPTER VI: RESULTS AIM 2: UNDERSTANDING THE SOCIAL, CULTURAL, AND ENVIRONMENTAL INFLUENCES ON THE PERCEIVED VALUE OF THE WIC FOOD PACKAGES AMONG LOW INCOME CAREGIVERS

A. CONCEPTUAL FRAMEWORK

Several categories of codes overlapped into emergent themes and concepts that exist along a continuum contributing to how the WIC food packages are valued. Themes included phenomena about how WIC benefits were valued in different households and locations (WIC clinic barriers/facilitators to difficulties/ease of shopping for WIC foods). Larger constructs of hectic lifestyles, underemployment, and varying levels of poverty illustrated a spectrum of influences and meanings behind these values. These themes either added to the value of WIC for these participants or lowered the value for each participant. Themes overlapped in participant interviews to the point of data saturation; however, no participant group was completely homogenous in the way they valued or did not value WIC foods and services. Often times the category of 'value' was not cut and dry for participants, but rather a rotating wheel of priorities in their food system. For example, a participant and her children may enjoy most of the foods provided in WIC, but if shopping at the store for WIC items and coming into WIC appointments is cumbersome, then the value of WIC is lowered.

B. EMERGENT THEMES

B.1. Cost of Formula Impacts Participants' Perceived Value

Similar to the WIC program nationwide, most of the participants in this study formula fed their infants. Most participants' perceived value of the infant package was high compared to

other WIC packages especially if the caregiver relied on formula to feed her child. The interviews revealed reasons behind *why* the infant package is so valuable to WIC caregivers compared to the WIC benefits received during pregnancy and childhood. Provision of infant formula from WIC was strongly valued by many participants in the study because of its expense and was emphasized as the most important item in WIC for many participants.

B1.i. *Expense of formula and its value to the WIC food packages impacted families along a spectrum which ranged from extreme to severe.*

Participants were able to quantify exactly how much WIC saves them when it comes to formula and stated they would have to resort to extreme measures to feed their infants if WIC went away. Only one participant stated that she would have considered breastfeeding if WIC went away. Many participants mentioned they would use their Supplemental Nutrition Assistance Program benefits (SNAP) for formula if WIC went away, but recognized that the very high cost of formula would drain that resource quickly and other strategies would have to be employed. Several participants mentioned they would have to revise their SNAP budgets to prioritize formula if it wasn't available in WIC.

> *If WIC went away- Oh! My shopping would only be arranged like for formula. I think it will go to a lot less of what we wanted, like no more of spending $90 on meat…Yeah think about how much milk is. Four cans alone and you're out almost $100 damn like…* ***Caregiver age 21***

Some participants mentioned children would be introduced to milk before the age of one if formula was not provided in WIC, and one participant mentioned a family member resorted to this when his family was no longer eligible to receive WIC.

> *So I'm happy that WIC has been here. My brother with his baby he had to start giving her whole milk and stuff before the time. Like I think it's just like one year, but he had to give her that at like 7, 8 months because it's so expensive. I wouldn't be able to afford that so, I think if WIC went away, a lot of moms wouldn't be able to afford Enfamil- maybe they have to use whole milk or anything like that before the suggested time, but I*

> *think that would be bad. I know that this program really helps, like who has money- I know that I'm like young- I don't have a good job to afford stuff.* ***Caregiver age 22***

One participant stated she would make her own baby formula.

> *I don't know the ingredients or anything, but I've seen YouTube videos but I didn't pay a lot of attention since I was enrolled in WIC. If I didn't have WIC, I think I would try that out because [formula is] expensive.* ***Caregiver age 21.***

Others mentioned they would panic and wouldn't know what to do. Participants said many children would suffer from hunger or die if WIC went away. One participant illustrated a bleak situation of having to choose whether to have a child due to the cost of an infant.

> *I think if WIC went away, to be brutally honest, and I know people won't like my answer, a lot of girls would probably get abortions cause they know they wouldn't be able to afford it. So instead of WIC being crowded, the County [Hospital] would be crowded because they give $75 abortions. And that's probably their only option. If you don't have the money, the support from another spouse, or the family support –period- you would not be able to afford a kid. $200 a month for an average amount of formula for a baby […]Sorry, you never know where the teenagers are gonna go to when the baby is crying and they don't have the money to get milk for that baby, you don't know what they're gonna do.* ***Caregiver age 26***

FIGURE 1: Spectrum of Impact Contributing to the Value of Infant Formula

SPECTRUM OF IMPACT CONTRIBUTING TO THE VALUE OF INFANT FORMULA							
Consider breastfeeding	Revise food budget to prioritize formula: less "junk food"	Revise food budget to afford formula: food insecurity and reliance on low-cost food	Panic/stress: "Don't know what to do"	Give dairy milk before the recommended age OR use "home recipes" as infant formula substitute	Child hunger	Child Suffering	Child Death and decision to terminate pregnancy
Potentially Positive (low likelihood)			Extreme				Severe

B.2. Breastfeeding support and social support impacts how the food packages are valued

Breastfeeding mothers enjoyed the expanded food package they received in WIC as well as the supportive environment WIC provides to nursing mothers; however, this alone was not what influenced their decision and ability to fully breastfeed their infant. Participants voiced that support is needed at multiple levels for breastfeeding success, and this was more important than the foods provided in the breastfeeding package. Although WIC also provides a supportive environment, messaging, education, peer counseling, along with the expanded food package for breastfeeding mothers, participants pointed out that the key to overcoming the barriers around breastfeeding was a supportive social network, workplace, and culture that has normalized the practice. One mother talked about her perception of isolation and frustration as one of the only Black mothers in her nutrition education class that breastfed.

> *Ugh. I went to the breastfeeding club when she was real little and I was the only Black mother for like 6 months. And I'm like damn this stinks. Keep on coming, keep on coming, and one came. I was like ahhhhhh! I'm not the only one!* ***Caregiver age 27.***

Breastfeeding mothers echoed the formula feeding mothers and talked about the cost and inconvenience that goes into breastfeeding. Working breastfeeding mothers talked about the difficulty of keeping up milk supply, leaking in front of coworkers, engorgement, finding time to pump, and being in a negative work environment.

Certain participants felt that WIC could be doing more to support breastfeeding (e.g., offering healthier foods and foods that support flow) especially if their messaging steers women in that direction so strongly. One mother seemed to convey that WIC offered to help her breastfeed but did not clearly explain the differences between the breastfeeding and non-breastfeeding women's packages until it was too late.

When examining value of the WIC food packages, the nutritious foods offered to breastfeeding mothers are not a major contributor, when compared to the value of the infant package offered to their non-breastfeeding peers. The main difference between these two groups was the level of support the breastfeeding mothers tended to have. Breastfeeding participants described work environments that were very supportive or flexible with scheduling (e.g., daycare or family owned business) as well as supportive social networks that normalized or encouraged breastfeeding. Breastfeeding mothers that had consistent or demanding work schedules had free or affordable help with childcare from family members.

B.2.i. *Barriers to breastfeeding impact all WIC participants' value of the WIC packages*

Barriers breastfeeding were thematic among breastfeeding and non-breastfeeding participants and overlapped a great deal with themes about stress and the hectic lifestyles low income women face. Approximately 29% (n=9) of the interviewed participants identified as breastfeeding mothers and received the WIC breastfeeding package for themselves. Several participants stated that they initiated breastfeeding, but for various reasons (e.g., returning to work, latching issues, difficulty, and inconvenience) relied on formula to feed their infants, thus making the infant package more valuable to them. One mother described how grateful she was for WIC because she could only breastfeed for three months in her unsupportive work environment at the Post Office. She didn't have a clean place to pump and was written up for going to the bathroom when she was pumping outside designated break times. She was aware of her rights but was also aware of her lack of power and prioritized keeping her job.

> *I didn't wanna have any discrepancies with the supervisor or the manager. You have to work. It's like a decent paying job. It pays twice as much as the minimum wage. I mean, I'm grateful for it.* ***Caregiver age 26***

B.3. The continuum of perceived need influences how families value the WIC food packages

Lower perceived value of the food packages after infancy was compounded by other economic, social, and environmental barriers.

> *I think it's just worth it for the baby [formula] cause you need it. You need the help. It is worth it for the kids but I just don't wanna deal with it. I don't got no patience for them kids. But if I could bring- like if I bring one child, like my baby, I can just bring him and no problem, but so- I just took em all off [WIC]. If I only had one or two kids, I'd stay. Since I got more than one or two, it's difficult. I wouldn't leave if I had one or two.* ***Caregiver age 28, 4 children eligible for WIC, only 1 enrolled***

B.3.i. *"I'd rather give it to someone who needs it": Perceptions of need impact participants' desire to use WIC food packages.*

Even if the WIC foods were valued, there seemed to be a notion among participants, that they should leave WIC because someone else was in greater need. Caregivers perceived that they were 'taking someone's spot' that needed the help more. For many caregivers, especially those living in non-urban areas, taking care of one's family independent of government help was a source of pride. Receiving benefits when one can "afford it" was deemed unacceptable.

> *I'm not the type of person that get in programs to stay, so when I can afford better and do better, I will give this position to someone who needs it.* ***Caregiver age 29***

B.3.ii *Families in great need- need WIC food packages, but value comes with compromises over barriers*

One participant summed up her perceptions of identifying the families who stay in WIC and those that leave the program based on those who were really struggling and those who were able to get by without the help. Several participants claimed they went through the hassle of attending WIC appointments and intended to stay in the program because they were struggling to make ends meet and WIC food packages save money. Many WIC families in the study were

experiencing the difficulties of under/unemployment. Joblessness increased the value of WIC for several participants. Many mentioned a spouse or themselves losing a job or not being able to find steady work. If participants were employed, they held little to no autonomy over their busy schedules, which impacted their home life and ability/willingness to remain in the WIC program even if they valued the foods. Several participants talked about working 2 jobs, compromising their sleep and time with their children to keep afloat. Those that were able to fit WIC into their busy schedule would use their very limited time off to come in to get the food packages only if they were in great need.

B.3.iii. *Circumstances of poverty make WIC packages valuable to families but add barriers to WIC use*

Many WIC caregivers faced stressors of poverty, hectic home lives, and strained schedules, as well as violence stricken neighborhoods. Some participants encountered the stressors of partners or family members leaving the household, which impacted their ability to manage their own security and ability to remain in WIC.

> *I took a little bit of a break from WIC, you know. Try to you know, trying to be a new mom. I rejoined WIC when I was pregnant with my first daughter. Then my ex-husband kicked me out of my own home. I was homeless for 9 months.* ***Caregiver age 37***

Several participants were accustomed to gang violence near their homes and experienced trauma in their young lives. Parents had to employ what might be considered extreme measures to keep their children out of harm's way. The children of these participants were not allowed to leave the perimeter of their yard during the day and often were kept indoors due to frequent gang violence. Playing after dark was out of the question. The notion of hopelessness and feelings of entrapment seeped through several participants' descriptions of their lives and neighborhoods, which made

WIC food packages less of a priority. Several participants spoke about the desire to move to a new place or get out of the area where they felt hopeless and trapped.

> *I hate it here to be honest. I'd rather go live in friggin' Egypt or something than live here. I don't know if you've heard this from anybody else or not- I don't know what it is about Danville, but everybody says they want to leave so bad but they can't. Like they don't know what's stopping em but they can't. That's how I feel about it, but cause I really want to move, I really want to go somewhere better, but then I think, it's like can't go (laughs). What are you gonna do?* ***Caregiver age 23***.

WIC is needed by many families in poverty but remaining in the program for monthly food packages worth $40 per month (for a child over age one) is sometimes difficult to manage and prioritize for families impacted by several levels of stress.

B.3.iv. *SNAP benefits are easier to use, less restrictive, and worth more than WIC food packages*

Caregivers who receive SNAP could easily compare the two programs. SNAP eligibility requires participant house households to be at or below 135% of the Federal Poverty Line (FPL), while WIC eligibility only requires households to be at 185% FPL to be eligible. For most participants whose household incomes fall well below FPL, SNAP benefits far exceed the benefits that WIC provides in terms of food only. SNAP benefits are given to participants via an Electronic Benefit Transfer card (EBT) and reloaded each month without having to attend follow-up appointments. In Illinois and many other states, WIC still uses paper vouchers, which can be difficult, and stigmatizing to use at the store and take a long time to print at the WIC office according to many participants.

B.3.v. *WIC packages are valuable because SNAP is not enough for many families*

Despite the preference and convenience of SNAP, many caregivers valued WIC because SNAP benefits are not enough to cover their needs. Some participants fall "in the donut hole of eligibility" where their household income is not low enough to be eligible for SNAP and WIC is

the only help they get. WIC packages were valued by many because the benefits allowed them to expand their SNAP budget for items they wanted. Participants considered WIC packages extremely helpful if their household regularly consumed the items available in WIC. Many participants identified the 'end of the month' as a time of struggle when SNAP benefits run out or run low. WIC benefits were deemed particularly useful during this time even though certain participants viewed them as a last resort.

B.4. WIC is more than food: The way the WIC program is administered influences how the food packages are valued

For some families, the value of WIC food package benefits extended beyond food budget savings. Many participants valued the education and health benefits they received. When it came to the value of nutrition education in WIC, participants more often spoke positively about the individual and tailored counseling they received from knowledgeable staff than group classes, unless the group education was particularly engaging. Referrals to other services were appreciated as well as tracking their child's growth and development. Participants at certain clinics felt safe and supported in the clinic environment with staff that were not judgmental and showed they care.

> *I think that when they ask, 'are you in a safe environment?' that's valuable because there's people that are not in a safe environment, and they can refer you to people that can help you. They have different agencies and stuff that they can tell you about. I think that the weight and the height is very helpful as well because in between times of doctor's visits, your baby's growing and you be curious if your baby's on the right track. They give you nutrition information about how to make your meals healthier as well, and they have quick ways to prepare meals. If you have problems with weight gain or weight loss, the nutritionist gives you ideas of different things you can do.* ***Caregiver age 31***

B.4.i. *Flexible yet organized clinics with staff that care and engage keep participants enrolled in WIC*

Some caregivers had a broader WIC experience and were able to describe their enrollment at different clinics to elucidate which environments they preferred. Participants valued clinics that were organized, engaging, and communicative. Participants also preferred clinics whose staff were flexible and amicable. Participants had positive reflections of individual staff members that made them feel comfortable or made a personal connection with them. One participant described a front line staff member whom she and the other mothers at WIC called "The Milk Man".

> *His name was the Milk-Man cause he obviously gave out WIC coupons for us to get milk, so he was called the Milk-Man. He was also a comedian, he would make us laugh, you know, he was down to earth and I guess when he left, a lot of people left. So, it wasn't just me, it was quite a bit of people.* ***Caregiver age 26***

Repeatedly, participants voiced appreciation for front line staff that "worked with them" if they needed to reschedule, were running late, or weren't able to navigate the system. Staff that advocated for participants were valued.

> *Like this one lady she came in with me one day but she didn't have an appointment for that day, they were like we don't have room here, but we can call around and we can take you at one of our sister stores. So, they called around, they found somebody that could take her, so she went over there and they saw her. They try to work with you, they don't try to turn people away. They try to bring you in.* ***Caregiver age 26***

B.4.ii. *Nutrition education undermines value when participants deem it repetitive and time consuming*

Although some caregivers valued the nutrition education provided at WIC, others felt it was a waste of time, not useful, repetitive, outdated, and a necessary burden to get their vouchers. A few participants were able to describe what they value most in nutrition education. Participants wanted curricula that were interactive and fun for their children. They want more than just recipes that use WIC foods, they want hands-on activities with real foods and useful information.

> *I feel like it can be more beneficial than saying like 'oh make a smoothie with peanut butter! That's a great way to get protein.' Like nononono. There's other ways to do it. Like there could be taste tests. There can be like having the farmers come in to show it, or maybe- I don't know just something to make it exciting instead of making it seem like this is what I have to do to get my vouchers.* ***Caregiver age 28***

B.4.ii. *Unsupportive, disorganized, and frustrating WIC clinic experiences are a barrier to remaining enrolled in WIC*

For many of the reasons already stated, some families found WIC was 'worth it', and for others it was more of a hassle to remain in the program due to their experiences at the WIC clinic. A major theme among participants was the hassle and time it took to schedule and attend WIC appointments. Certain clinics were described as disorganized, and frustrating for participants who would travel via public transport or had limited transportation means only to find the computer system was down and no one called to inform them. Often times WIC appointments are scheduled weeks to months in advance, before the participant knows her schedule, and rescheduling an appointment is difficult. Many participants found it very difficult to reach a staff member on the phone if they needed to re-schedule or get in the system for the first time. Some clinics held walk-in hours, but this didn't seem to solve the wait-time issue. Certain participants understood it was not in their power to conveniently reschedule an appointment. Others conceded that once they arrived at the clinic the wait time would be long.

> *I'm trying to get both of my children [re]enrolled in WIC. The WIC office got it all messed up. So, I try to do what I can. I always tell people, when you got these WIC appointments, try to make it because when nowadays you don't get another appointment for three to four weeks.* ***Caregiver age 40***

At certain clinics, participants experienced rudeness or judgement from staff members that didn't focus on participants' strengths and needs. Participants encountered front line staff they felt were combative with them about their paperwork and documentation as well as filing mistakes

that happened due to system glitches not themselves. Participants described many staff members to have rude attitudes and perceived that they “didn’t like their jobs”.

B.5. Negative experiences shopping for WIC make it difficult to value the food packages

The value of the WIC food packages is not only tied to participants’ experiences at the clinic, but also their experience using WIC vouchers at approved vendors. Difficulties arose while searching for the correct WIC foods in the store as well as in the checkout line. Participants mentioned incorrect labeling of WIC foods, confusion, and inconsistency over which foods were WIC approved which impacted their desire to redeem the foods in their packages. Participants were frustrated that the brand of items allowed in WIC (e.g., for milk, cheese, or peanut butter) could change from week to week depending on which was the cheapest brand. Confusion over correct sizes and types of food allowed to be purchased with WIC caused a great deal of frustration for the caregivers, leaving vouchers unredeemed. Using WIC at the checkout line was time consuming whether the participant had issues shopping for the correct items or not. Participants described cashiers that were judgmental or untrained to deal with WIC vouchers and this in combination with the cumbersome nature of the process caused ‘hold ups’ in the grocery lines; this embarrassed mothers trying to redeem benefits for themselves and their children.

B.5.i. *WIC food packages are valuable…after you get used to shopping for them*

Seasoned participants would employ strategies to deal with the difficulties using WIC at the store. Strategies to diffuse the frustrations of shopping for WIC items involved apologizing to other customers in the check-out line ahead of time as well as learning which cashiers to go to and which to avoid. Two participants mentioned they were more comfortable with younger cashiers because they were less contentious. Some participants would come prepared with their

WIC food lists and advocate for themselves at the store. Others would only use one coupon at a time so they wouldn't feel like they were holding up the line. Because certain stores had a better selection of items or were deemed easier to navigate, selective shopping was used as a strategy in deciding which stores to shop for WIC foods. Some participants learned how to shop for WIC foods from others with WIC experience.

B.6. Stigma of using government assistance makes WIC food packages less valuable

Drawing from experiences at the grocery store as well as personal convictions and encounters, the stigma of using WIC and other assistance was a theme throughout the interviews. For some participants, this stigma was uncomfortable and embarrassing, and made being enrolled in the program more difficult. One participant was quite conflicted about "being another number in the system" and doing what was right for her child. Others took a 'tough skin' approach to the stigma and maintained that other people's opinions didn't come before the welfare of their child's health. Many participants rationalized that those who put forth this stigma did not understand the program, eligibility requirements, or the societal benefits WIC provides and dismissed the stigma as ignorance. Interestingly, all of the participants that expounded on the topic of government assistance and stigma were from non-urban clinics. Both white and Black participants from these non-urban clinics spoke about the phenomenon of stigma. Those that were able to take a 'tough skin' approach and/ or rationalize against the stigma, perceived WIC food packages as more valuable than those who were more affected by the stigma or held stigmatizing beliefs themselves. Most of the participants who were able to view stigma as irrational and of little consequence when it came to their family's health were older and spoke as if they learned with age what is more valuable to them.

> *I think you become less judgmental through growing up. I'm 50 something years. At young age, I was more judgmental. I didn't expect people do the right thing, first time or you know like in a moment. I expected them to respond to my needs, but I realize at older age, that life doesn't go that way. We have to be patient, know the person before we judge them. So it's through experience as well as through hardship, through conflict with people, then I try to examine myself and realize you have to understand a person before you get upset with them, and know from where you're coming. Examine yourself too. That helps because social service doesn't seem easy.* ***Caregiver (father) age 54***

Some participants had strong opinions about others who they felt were abusing assistance programs. There seemed to be an attitude among participants that people who "worked hard" were deserving of help while others were less deserving of assistance. Participants who were married, worked full-time 1st shift jobs, and/or attained higher education held more personal conflicts with receiving help from government assistance.

B.7. Choice makes the food packages more valuable, but WIC is restrictive

Resoundingly, participants talked about the importance of choice, as demonstrated by the comparison of WIC and SNAP. Participants felt most restricted when it came to milk and most preferred 2% or whole milk, while WIC provides only 1% or skim in the women's and child's packages in Illinois. Participants also felt restricted by the types of cereal allowed in WIC as well as having to choose the cheapest designated brand of certain items. Every participant either wished she had more autonomy of food choice within the program or vocalized that she had no choice and that's how it is. Lack of choice in the program led to unredeemed vouchers, food waste, compromised nutrition, and low self-esteem.

> *They should have the option to sometimes get the things that they want to. You know. If you don't give families options, it kinda tears their self-esteem down. Sometimes they say when you cook, you cook from the heart, your meals come out great. Sometimes when you're angry or you trying to fast cook, then you might mess a meal up. I generally cook from the heart so you know- it's like soul into the food. So it's just like when I go and pick out the food that I want to cook, I want to feel love coming from the food. People that's trying to make WIC happen or actually work for them, deserve to get an option of certain things. They could be the same things like wheat bread, oatmeal or grits you know- grits is a good food for a lot of African Americans- like to eat, you know-they grew up on.* ***Caregiver age 35***

Many felt restricted by some of the options in WIC, however many did point out how much they enjoy the freedom that comes with the fruit and vegetable cash vouchers which add immense value to the WIC program despite being worth only $8-10 per participant per month. According to some participants, food choice in WIC may be restrictive but it has improved greatly over the past few years, especially with the addition of the fruit and vegetable voucher since 2009[27].

C. DISCUSSION

The perceived value of the WIC packages among caregivers of children is influenced by many factors. Jensen and Labbock (2011) state there is a great need for additional research in this area and postulate further that "major factors, such as participants' perceptions of the value of the packages and WIC's dependency on rebates from formula companies to fund a portion of the program, may dampen WIC's breastfeeding promotion and support efforts" [34]. This study aimed to tighten that gap in the literature by gaining an in-depth understanding of the perceived value of WIC food packages among low-income caregivers. Figure 2 illustrates the process by which the contributors and barriers influence participants' value the WIC food packages.

WIC participants in this study consider breastfeeding highly beneficial for their children, but multiple barriers exist- especially for working mothers with insufficient social support. Therefore, provision of infant formula by WIC is highly valuable for families that formula feed, especially due to its excessive cost. A qualitative study with both WIC and non-WIC mothers aimed at understanding the cultural factors affecting a mother's decision to breast or formula feed revealed similar results to this study in participants' agreement that breastfeeding is best, but barriers to breastfeeding leading to formula use was inevitable in some circumstances[109]. An economic analysis of formula and breastfeeding in the WIC program reveals the retail price of

infant formula drives up the value of packages containing infant formula for the first 6 months of the child's life [35]. WIC has promoted breastfeeding since 1989, made breastfeeding a priority officially since 2004, and has incentivized breastfeeding with an expanded food package for breastfeeding mothers since 2009 [110]. The Healthy, Hunger-Free Kids Act of 2010 increased emphasis on breastfeeding promotion and support and requires breastfeeding performance measurements to be compiled and published by the USDA through WIC agencies at the state and local levels [111]. As promotion efforts increase, breastfeeding and partially breastfeeding rates among WIC participants have risen steadily[112], however most low-income women in WIC rely on formula due to the barriers to breastfeeding. The breastfeeding participants in this study report the expanded food package does not contribute greatly to their decision to breastfeed, and the key difference between the participants who fully breastfed their infants and those that did not was the level of family, work/scheduling, and community support in their lives. In comparison, non-WIC participants in a qualitative study to understand breastfeeding decisions stated they managed to continue breastfeeding by establishing small, achievable goals and seeking mentors. However, unlike the participants in this current study, the participants in the aforementioned study felt that using formula was personally and socially unacceptable due to need [109]. Going back to work or having to work in general was cited as a key factor in the decision-making process of how the participants in this study fed their infants in this study. Dunn et. al. found breastfeeding is significantly related to employment status in that 55% of mothers who breastfed during the past 6 months were unemployed or stay-at-home moms, 30% worked part-time, while 15% were employed full-time [113].

A 2013 systematic review of the literature surrounding barriers to breastfeeding among WIC mothers identified 5 key categories of barriers including: lack of support inside/outside the

hospital, returning to work, practical issues (e.g., pain, discomfort, and leaking), WIC-related issues (notion that WIC's provision of formula decreases breastfeeding rates), and social/cultural barriers like stigma of breastfeeding around others[114]. These barriers were also echoed among both the breastfeeding and non-breastfeeding participants of this study. Deeper insights into participants' real lives and the difficulties they face managing an infant while maintaining employment or facing the hectic circumstances of low-income households reveal how cumbersome these barriers actually are and how valuable WIC is to these families whether they receive help in the form of infant formula or breastfeeding support.

It has been posited that for participants in WIC who rely on formula, these infant packages are more valuable than the food packages for women and child participants. For the participants in this study, the perceived value of the packages that women and infants receive was often higher than that of the package the child receives after age one due to the high cost of formula, and the greater abundance of food in the women's packages. This was weighed against the described inconvenience and hassle of coming to WIC appointments, especially with multiple children. Often times participants' hectic lifestyles or busy work schedules would get in the way of keeping appointments for older children even if they valued the healthy foods in the children's package. Previous studies have also found that parents with limited resources report feelings of lesser control over their health outcomes[63]. Many of these participants voiced raw frustration over the lack of autonomy in their lives due to their work schedules.

> Y*ou're like a robot- you don't have that much time for yourself. I've gotten to this life where you're always on a schedule- from school to home to work to eat and sleep. That's it.* ***Caregiver age 21.***

Depending on the nature of the services and the environment of the WIC site that participants experience, staying enrolled in WIC could either be perceived as valuable or cumbersome. WIC

services were valuable at clinics that: 1) are flexible and organized; 2) employed staff that that was amicable, empathetic, caring, and knowledgeable; and 3) created nutrition education that was engaging, interactive, and individualized to be useful for each participant's needs. Clinics that achieved these goals followed the principles of participant centered services (PCS)[115] which has been documented to increase WIC usefulness for patients according to their needs[116,117]. Clinics that made the program less valuable for participants: 1) had rigid rules and confusing communications with clients attempting to schedule/reschedule appointments; 2) employed staff who had bad attitudes; and 3) used nutrition education that was redundant, boring, and not useful. Woelfel et.al. (2004) found similar clinic barriers to WIC services (e.g., long wait times and difficulty rescheduling appointments) among surveyed WIC participants[37].

Difficulties at the grocery store, preferring SNAP over WIC and the stigma of being on government assistance decreased the value of WIC for participants. Shopping for WIC eligible foods was not easy for many participants and posed a barrier to remaining in the program. Other studies have also revealed that difficulties shopping for WIC foods have contributed to barriers to using WIC and dissatisfaction with the program [37,104]. Shopping experiences decreased participants' perceived value of the program when: 1) stores have labeling that is incorrect/non-existent for WIC items, inconsistency with respect to eligible brands, and rude, untrained cashiers; 2) participants' felt like they were holding up the line due to problems at check-out; and/or 3) they felt stigma from other customers or the cashier. Several states have adopted an EBT for WIC [26], which gives participants reloadable monthly benefit cards they can swipe at check-out. Other studies have found the value added after implementation of EBT in WIC includes reductions in very low food security and increased consumption of healthy foods in children[118].

This study was conducted in Illinois, where cumbersome, stigmatizing paper vouchers are still used in WIC. WIC has required states to switch over to EBT by 2020 [26] which should alleviate several barriers for participants and vendors alike [11]. The SNAP program has been using EBT since 1984 and implemented its use nationwide in 2004. Like WIC nationwide, many participants in this study receive benefits from SNAP as well as WIC and were able to compare the two programs. Unfortunately, WIC does not compare as well as SNAP because SNAP is easier to use, does not require frequent clinic appointments, and allows more choice/autonomy with selection of foods. This is not to say SNAP has not come under scrutiny. Participants of this study were aware there is no restriction on SNAP foods based on health.

Pomeranz and Chriqui (2015) review several factors related to revising the SNAP program to be more like the WIC program with respect to the ability to define and differentiate products that meet health guidelines [119]. The science indicating that SNAP recipients have poorer diet quality than income-eligible nonparticipants is often cited [120]; however, these results remain complicated and cannot be broadly applied to all age or income groups [121]. A systematic review of the literature on the diet quality of SNAP recipients concludes the program reduces food insecurity and hunger, but nutrition science indicates participants are not meeting the US Dietary Guidelines as well as their eligible non-participating counterparts[122]. WIC still remains an important resource for low-income families despite the various aspects of SNAP. Many families in this current study and elsewhere either do not qualify for SNAP or have limited SNAP resources and remain in the WIC program for the extra help.

In a study examining the food-purchasing behavior of low-income women, circumstances of poverty such as homelessness reduced the odds of purchasing both “healthy” and “unhealthy” food groups [123]. In the current study, circumstances of poverty served as a barrier to WIC

services and obtaining the foods in WIC but also drove needy families to value WIC food packages more due to the food security they provide especially near the end of the month when funds are tight. WIC participation has been linked with better food security status among children. This is especially important given that approximately 15.6% of households with children are food insecure[124]. It is important to find ways to retain low-income food insecure families in the WIC program, for every 1 additional WIC visit for children, the odds of food insecurity and hunger significantly decreases [5]. Some participants spoke openly about their struggles and described being "appreciative of any help given". This appreciation however sometimes surfaced in self-effacing behavior such as being reluctant to constructively criticize a program whose food choices were not useful to their households, stating "beggars can't be choosers". Lower self-esteem and self-efficacy are linked to poorer health behaviors related to eating [63,64]; therefore, increased freedom of choice and variety in the program (as is provided by the autonomy of the cash value vouchers for fruits and vegetables) could lead to heightened participant empowerment and improved health outcomes [49]. The desire for more choice in WIC was a major theme among the participants of this study. Expansion of choices and added variety would likely increase the perceived value of the WIC food packages for women and children.

This study is not without limitations. As with most qualitative research, the role of the researcher may influence the interview protocol and interviewee responses. Reflexivity and self-scrutiny[125] throughout the research process was practiced; however, the results may have been altered if the interviewer was recognized as a member of a research team or nutrition professional. Care was taken to conduct the interviews privately and participants were informed the researcher was not a WIC staff member and that their responses would not affect their program participation in any way. However, certain participants may have been reluctant to

speak negatively about the program within clinic walls. The researcher was unable to purposively sample those that had already left the WIC program since all participants were recruited from a larger study that required infant WIC participation at baseline. To partially remedy this, participants with more than one child that had been previously enrolled in WIC were recruited. Because this study had limited resources, only one interviewer and coder was involved which limits inter-rater reliability of codes; however, an expert reviewer oversaw the coding and analysis process. Because WIC is administered at the state and local levels, all results of this study may not be empirically generalizable to participants, clinics, and vendors.

D. IMPLICATIONS FOR RESEARCH AND PRACTICE

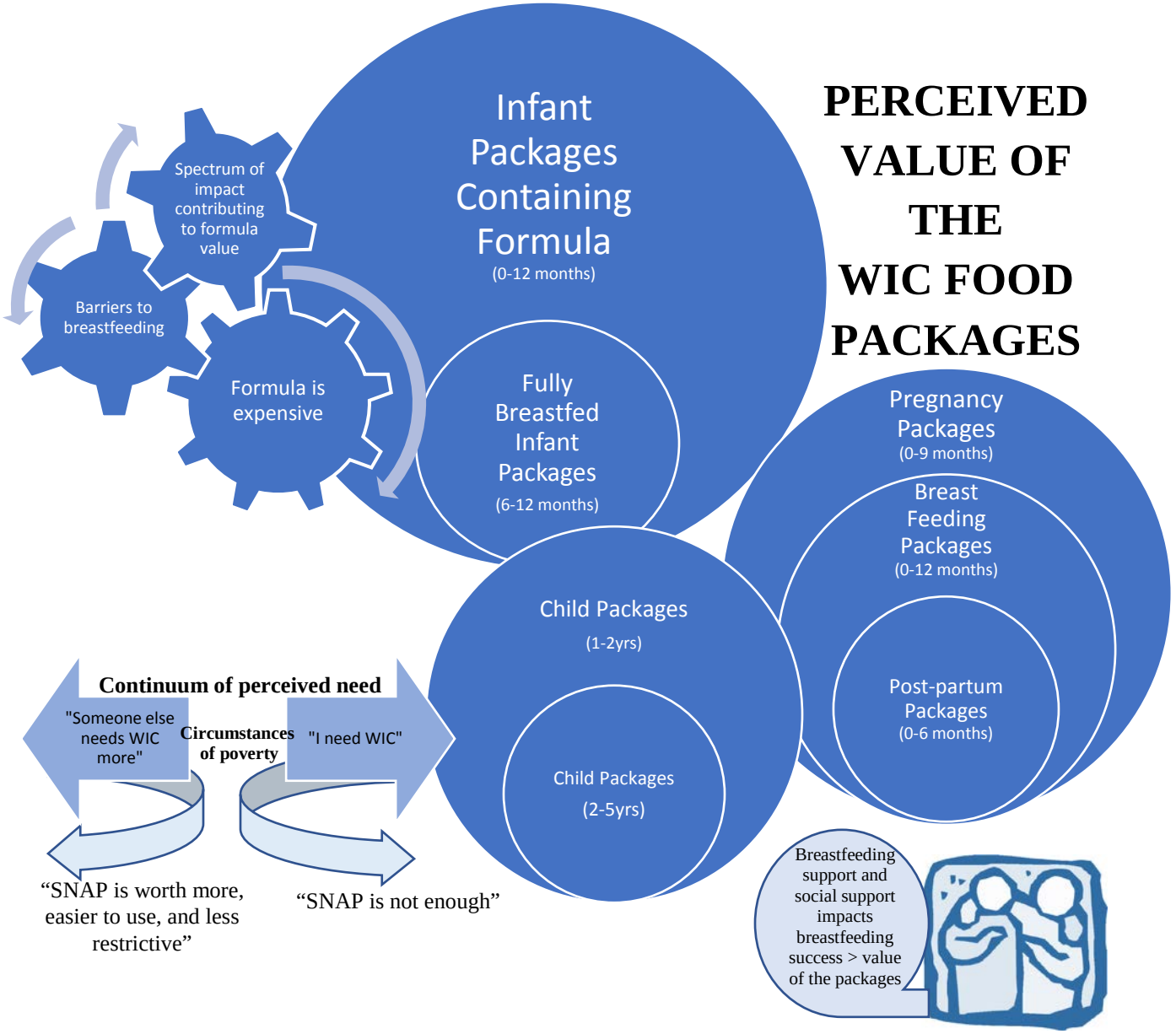
It is important to understand what influences how WIC parents and caregivers value the WIC food packages in an effort to retain existing participants in a program that benefits child health [2,3,38,39]. Participants in this study spoke about many factors that influence the perceived value of the WIC program, many of which may be difficult to address as they are on the macro level (i.e., circumstances of poverty, social support, stigma of being on government assistance). More work needs to be done at the policy level to address these issues; however, it is important that WIC practitioners, health professionals, and other researchers consider these larger influences when asking health questions or delivering nutrition education. For example, promotion and support of breastfeeding in WIC is important and worthwhile; however, so is support for mothers who use formula due to the multiple social, cultural, physical, and personal barriers to breastfeeding.

Participants did identify several factors than can be addressed at the WIC clinic level and vendor levels. Participants find it valuable when clinics are accessible, flexible with appointments, and provide clear communication about wait times and documentation.

Participants want to stay in the program if clinics employ staff that are knowledgeable and practice PCS, and have engaging, interactive nutrition education activities, and individualize participant needs. WIC agencies need to work with vendors more closely to develop better cashier training and labeling systems as well as to provide food lists that are clear, consistent, and correct when the participant goes to select her benefits.

Autonomy of food choice is key to how participants weigh the perceived value of the program against the barriers involved in receiving its benefits. Introduction of the CVV for fruits and vegetables in the program, which provides some level of choice improved participants' view of the program in this and other studies[36,48,126]. Although WIC continues to revise the choices in the program, more could be done at the WIC policy level to expand the healthy choices available in WIC that also meet the recommendations put forth by current nutrition science.

FIGURE 2: Barriers and Contributors to the Perceived Value of WIC Food Packages



Program Administration Influences	
↑ Value	↓Value
-WIC Clinic Level-	
-Flexible -Organized -Accessible	-Rigid rules -Tech failures -Difficult to navigate
Staff: caring & knowledgeable	Staff: rude attitudes
Nutr Ed: -Engaging -Interactive -Individualized	Nutr Ed: -Repetitive -Boring -Wastes time
-WIC Vendor Level-	
-Clear food list -Correct, clear labeling -Consistency	-Confusing/ complicated food list -No/ incorrect labeling -Inconsistent items allowed
-EBT for WIC	-Holding up the line
-Well-trained cashiers	-Stigma from rude cashiers and other customers
-Policy Level-	
Choices and autonomy	Restrictive benefits

CHAPTER VII: RESULTS AIM 3: FOOD CHOICE IN LOW-INCOME WIC CARGIVERS: AN IN-DEPTH ANALYSIS USING THE FOOD CHOICE MODEL

A. OVERVIEW OF THE FOOD CHOICE PROCESS MODEL

This arm of the study offers a deeper theoretical analysis of qualitative interviews of low-income WIC caregivers using the Food Choice Process (FCP)[14] as the conceptual framework. Rational models assume that people are able to make mostly utilitarian decisions based on their preferences for health and wellness, and that they can make the best choice available to them in equilibrium. Most health and nutrition professionals use rational models in attempts to influence how people make food decisions[80], although most studies have shown that food choice decisions are primarily based on factors such as time, cost, convenience, habit, and short term sensory pleasures[81,82]. For this reason, this study was guided by the concepts addressed within the FCP[14] from a constructivist paradigm [94].

A graphic depiction of the FCP model can be found in Appendix II. The FCP model demonstrates the way individuals make food decisions for themselves and their families and how this is influenced by a variety of factors framed by their life course and changeable trajectories (illustrated in the top macro-level tier of the model)[61]. Within each person's life course, their ideals, personal factors, social factors, and resources influence their personal food system[14]. Negotiations of values within this personal food system lead to the strategies that person uses to choose food for herself and for her family[14,60].

In-depth qualitative research examining individuals' food choice capacity has revealed that the standards for how people feel they should eat are based on their life course events and circumstances. Prioritization of conflicting values (time vs. health) and finding strategies for balancing these conflicting values (e.g., choosing the healthier option from the convenient foods available) are ways people manage values within their personal food systems[60].

A constructivist approach allows participants to report their own views without limiting them solely to the researcher's conceptualization of the issues. This approach provides an opportunity to gain a more detailed understanding of multilevel processes [94] such as the FCP. Using a constructivist paradigm along with the FCP to guide the interview process in this study is particularly important because of the complex factors within a person's life course that influence how they make food decisions and feed their families.

B. FCP: LIFE-COURSE EVENTS AND EXPERIENCES

Life-course events and experiences impacted the food behaviors of WIC caregivers and their value of WIC foods. The FCP model places an individual's life experiences and the trajectory he or she leads at the hierarchy of the model illustrating food choices behaviors[61]. Family traditions, personal transitions, and life circumstances influenced these caregivers' food choices for themselves and their children.

B.1. Learning to Cook

Learning how to cook was a significant theme in many participants' lives. "Cooking from scratch" was a learned behavior passed down through observing a mother or grandmother role model.

> *I'm only gonna be 30 but I've seen and I've witnessed a lot of things by always being under my grandma, always wanted to watch her cook. All I remember was she standing in yeast and flour. That's all I remember seeing and hours later, it's time for dinner and we have a whole pan of freshly baked wheat bread.* ***Caregiver age 29***

Several Black families spoke of traditional cooking and the significance of everyone coming together for "Sunday Dinner". Participants often spoke of circumstances that impacted their time and ability to provide the foods they would like to serve, but one participant mentioned the act of coming together superseded what was served each time.

> *We try to make Sunday dinner as much as possible, and we use whatever we can. We're not too picky, we don't try to overdo our part. We try to stretch out the last dollar. Always down to the last cent.* ***Caregiver age 40***

Hispanic participants also placed emphasis on "traditional home cooking" to nourish and show love to family members. Participants emphasized that learning how to cook was not an option for these families; it was expected.

Several participants who were accustomed to cooking, mentioned their children taking an interest in preparing food and helping out in the kitchen, illustrating a generational cycle. Cooking skills were a personal factor that participants either observed and were taught from their family members or had to learn on their own during the transition to adult life and raising children of their own. Two participants gained cooking knowledge from being enrolled in culinary arts programs provided through secondary education.

B.1.i. *The value of the foods provided in WIC tended to be higher for participants that spoke about cooking and knowing how to prepare meals for their families*

Often times this value not only came from the significance of the act of cooking itself, but from the economic advantages it provides. Participants who valued WIC more, spoke about minimizing food waste, batch cooking, buying in bulk, and carefully budgeting and prioritizing their grocery lists. Some participants valued the health benefits and savings cooking knowledge afforded them and their families. Cooking was a shared responsibility in several households. However, whether the participant identified as a main food preparer or not, a female family member was always the main cook in each household. Certain participants lacked interest in cooking and relied on convenience foods or other family members (e.g., grandmother, mother, or aunt) to shop and prepare food for them and their children.

C. FCP: INFLUENCES

C.1. Personal resources and stressors influence participants' food behaviors and value of WIC foods

Resources such as social support, other government assistance, and level of autonomy over one's schedule impacted how each participant valued WIC foods. These resources in combination with personal stressors influenced participants' food choices. As mentioned previously, some participants relied on other family members for cooking or providing food. These participants tended to value WIC slightly less because they were not the main cook and tended to prefer foods not offered in WIC. Alternatively, those that had family or other help with childcare, had more flexibility to plan prepare meals using WIC foods. Certain participants voiced that they lacked the time and autonomy with their schedules to plan meals as effectively. Although many participants were employed, not all had consistent work schedules that allowed them ability to plan meals. Several participants described their hectic lifestyles like "flying by the seat of your pants" or "go-go-go". The participants that lacked resources of time and autonomy to attend appointments, shop for WIC foods, and prepare those foods held lower value for WIC foods.

> *It's one of those things that you have to weigh the benefits versus your own patience- there are days like- by the time we got ready to go to the grocery store, I was like know what, it's not worth it tonight. I have two cranky kids, another one I could tell was getting there, I was getting tired and not feeling good- and I'm like know what- forget it, we're not going tonight.* ***Caregiver age 33***

Participants who had to care for older family members, other people's children, plus their own children faced additional stressors with managing appointments and schedules that would allow them to stay in the WIC program. Some participants also described taking on responsibilities and caring for younger family members while they were young themselves. Caretaking behavior was

generational within certain families. One participant who took on family responsibilities at the age of 16 for her 5 young cousins described how her older boys helped her out with their younger baby brother while she worked a second shift job. Participants who were accustomed to taking on responsibility at a young age tended to be pragmatic about their circumstances and were accustomed to planning ahead, whereas others who were not seasoned in their caregiving were in the process of learning how to balance time and manage the responsibility.

> *My youngest son changing the diaper, making a bottle. The oldest wants to put [the baby's] clothes on. They help me. People say it's hard having all boys, but it's really not even, cause when I was 16- and my uncle was always on the road- I had his 5 kids. That's when I didn't have no kids. Feeding them, dressing them, make sure there're clean clothes for school. Folding this and that. I was kinda thrown into it, but after that- came to know it. I had to do all them [girls'] heads, but with the boys it's not hard like it is with girls.* ***Caregiver age 33***

Some participants experienced stress and traumatic events that influenced their food system and ability to plan and shop for themselves and their children. Participants' circumstances of poverty, living in violent neighborhoods, illnesses and deaths in the family added additional stressors that made it difficult to place priority on food decisions let alone WIC.

> *It's hard for me to go here, go there, go here, go there- you know I got a baby and then I got the other kids, and then I'm working. There's a lot going on. But I can't stress that a lot you know. My case manager stays on me, "did you go to the WIC appointment cause you gotta go down!" and then you go to the doctor. So, I just try to, try to tell her, you know, I couldn't make it and why, I couldn't get a bus card- I just...* ***Caregiver age 40***

Participants' resources in terms of other government assistance often influenced their food behaviors and how they valued WIC. Most participants received food benefits from the Supplemental Nutrition Assistance Program (SNAP). Like WIC, SNAP provides monthly food benefits but the similarities in the programs end there. Many participants find SNAP easier and more convenient to use, and enjoy the less restrictive food choices they can redeem at the grocery store. The amount of SNAP benefits each participant receives depends on her household

size, income, and other factors. Some participants' SNAP benefits were plentiful, others were "just ok", "not enough", and some didn't receive any SNAP at all. Those that fell along the "plentiful" end of the SNAP benefit spectrum tended to value WIC less because it was easy for them to purchase the foods that they wanted without "dealing with" WIC. One participant received what even she considered an excess of SNAP benefits and was accustomed to throwing all of the unused food out of her freezer every month and buying new items at the beginning of the benefit cycle. This participant had 7 children, 4 of whom were eligible for WIC, and only the infant was enrolled due to the infant formula cost savings WIC does provide.

> *When I first get my LINK card, I take everything out the freezer, throw everything away, and buy everything new again. I don't like to keep nothing in the refrigerator longer than a month. I don't even never look at the price cause I just be picking up stuff. I get the kids like ice cream and a little bit snacks and stuff, cookies and stuff. Then I go to the meat and spend- I don't know probably like $300 on meat, then I go buy the sides. I spend about $50 on snacks and stuff for em.* ***Caregiver age 27***

Participants tended to value WIC food packages more if WIC provided foods they were already accustomed to buying and eating. WIC was described as a resource that expands the SNAP budget, especially for milk, fruit, vegetables, and eggs. Many stated they were "appreciative of any help" given, and valued WIC, but still acknowledged the cumbersome nature of remaining enrolled in the WIC program compared to SNAP.

> *Well I could tell you straight up that the food stamps are much more convenient. They're also faster because you just scan your card and you can use your cash or your food stamps on the one card. I also think WIC is extremely important because it does provide things that you would normally have to buy with the food stamps without having to buy them with the food stamps. So you have more for you know like the little things you like or what your kids like.* ***Caregiver age 37***

Some participants fell in the "donut hole" where they qualified for WIC, but made too much to qualify for SNAP. Participants were very aware of the threshold at which a slight change in their income could disqualify them from receiving SNAP which unfortunately, was often worth more

in terms of food security than their upward mobility, getting more hours, or a raise at work. One participant who held a job that made her ineligible for SNAP admitted to purchasing other people's benefits to help feed her family.

> *People say you have to beat the system. And it's hard to do that when they have your paycheck sitting right there. We know people in the neighborhood that sell their food stamps. We buy it. I don't know if you've ever heard of it. They sell probably like 200 stamps, food stamps for 120 cash. So, yeah we pay that amount to get food. I mean I have three kids and it's hard spending that with cash. I have to think about transportation, daycare, rent, bills - they don't look at that.* ***Caregiver age 26***

C.2. Personal factors such as food preferences influence participants' value of WIC foods

Participants' food preferences were heavily influenced by what foods they were accustomed to and consequently whether they found WIC foods valuable or not. Participants resented the restrictions in WIC if too many items did not align with their preferences and went further to describe how these restrictions ultimately have a negative impact on those for whom the program is intended when the food goes to waste.

> *She'll sit there and cry and just spit the [baby]food on out. So what am I supposed to do? It's like this, if you're telling people what they can and can't get all the time, they'll probably get it, but it'll go to waste. Only it's not being used for what it's supposed to be used for, which is the kids and the family, or the breastfeeding mother. If you're putting restrictions on it and you're not knowing that they can't take it, or they stomach can't take it- they gonna get it just because it's on the coupon, but it's going to go to waste, or they gonna give it away.* ***Caregiver age 35***

Participants' food preferences and food behaviors were identified through personal histories and overarching statements about how they were "raised", what they "grew up on", and what was available. Whether participants identified as healthy eaters or not, their preferences for what they ate did not deviate far from the foods they ate as children. With consideration for the items allowed in WIC packages, participants spoke about the difficulties of "changing brands" or switching to a different type of milk (e.g., from whole or 2% to low-fat/skim) when they had been accustomed to certain tastes and textures their whole lives. For participants who grew up

eating white bread, the texture of 100% whole wheat was “gritty” and disturbing. Several participants mentioned developing a sweet tooth from a very young age, and one participant remembered her mother putting sugar in water to make it more palatable when the household ran out of juice or soda and described giving the same to her son because she preferred to consume the juice that he received from WIC.

> *I like, I love the juice. I love the juice. …his grandma have what she call ‘sugar water’. Where she gives him a touch, a teaspoon of sugar, and she shake it up in his bottle or his sippy cup, and he’ll take that over the juice. The juice like his last resort, I end up drinking it.* ***Caregiver age 21***

Preferences for sweet tasting foods impacted how participants valued the breakfast cereals in WIC. Some participants found the breakfast cereal brands allowed in WIC too bland for their tastes because they were accustomed to eating very sweet breakfast cereal.

The same participants indicated the WIC cereals are “not what kids eat” because they believed “sweet cereal is for children” which further elucidated learned behaviors from an early age.

> *Not all children will eat like multi-grain Cheerios. It’d be nice to be able to get other cereals on WIC- with the different flavors that have all the vitamins and minerals in it- the children would actually eat.* ***Caregiver age 37***

Parents of children who identified as unhealthy eaters did voice a desire for their children to eat better for their health, but talked about how difficult it is to practice “do as I say, not as I do”. Caregivers voiced frustration with children being picky eaters but felt reluctant to “force” their child to eat a food they did not like right away. They made efforts to expose their children to variety, but ultimately gave way to permissive feeding because they did not eat those foods themselves.

> *I just feel like- this is what I say- I can be as unhealthy as I wanna be, but that doesn’t mean I want that for him.* ***Caregiver age 31***

Alternatively, those who had been “raised” in a household that regularly consumed “healthy” foods took no issue with the whole grains, unsweetened cereals, and “plain” oatmeal provided in

WIC packages. Preferences for fruits and vegetables were mentioned frequently also, and these families tended to highly value the fruit and vegetable voucher provided in WIC due to the savings it afforded them on fresh produce. These parents tended to place value on exposing their children to a variety of new foods that they ate themselves and also had fewer issues with picky eating. If a child did not like a new food at first, this was met with persistence rather than defeat.

> *My kids will eat just about anything. They're just that way cause- I'll try anything once. And I guess I passed that on down to them as well. Introducing them early to different flavors and textures and fruits and vegetables and stuff like that helps to increase their love of those as they get older because it just kinda gets engrained in them. That's what I kinda did with mine. I could put carrots in front of my son and he'll be like a little rabbit and eat them all.* ***Caregiver age 37***

Other participants talked about addressing picky eating from a practical/ economical perspective:

> *I'm not going to cook another meal for nobody else. I'm gonna bring it all together and it gonna work out. That's just waste of food cause they should be able to eat what you cook whether they like it or not. How would they like it if they don't taste it?* ***Caregiver age 40***

Negative case study analyses revealed several participants that grew up surrounded by unhealthful food behaviors, which led to disease in their immediate families. These experiences caused them to practice different food choices for themselves and their family.

> *I come from a very unhealthy family, very obese and just ill, very sick. So, for me, I don't wanna be like that. So, I try to eat as best as I can. I try to provide the best, try to provide the best for my kids. I grew up with a mom who worked 90 hours a week and was never home to make dinners. My mom and dad got a divorce when I was 10. So, my mom would leave a blank check every night before she would go to work and we would order pizza for dinner every single night. All my friends thought it was cool, "oh wow you eat pizza every night" and I was like (sarcastic tone) "wow I get pizza every night." It's just not healthy. That's how my sister was always obese and very unhealthy. I just, I don't want the same for my kids or myself.* ***Caregiver age 32***

Food preferences were influenced primarily by participants' personal histories and the foods they were accustomed to eating. Certain life circumstances and transitions such as pregnancy, living with a partner, and having children were influential as well, but as some of the previous quotes illustrated, taste, convenience, cost, and health also play a role in food choice values. Each of

these values held different priorities in participants' personal food systems and as such, negotiations of these values took place all the time. These negotiations, in turn, influenced the value participants attached to WIC foods, their decisions to redeem WIC benefits, and their ability/decision to remain in the program.

D. FCP PERSONAL FOOD SYSTEM VALUES AND NEGOTIATIONS

D.1. Values and negotiations about convenience impact how WIC foods are valued

Participants valued convenience in their personal food system, which impacted how they used and valued WIC foods. As mentioned previously, many of the low-income caregivers were strapped for time and resources, which inhibited their ability to plan meals. Participants valued WIC foods like whole grain pasta and canned beans because they were "easy to whip up". Negotiations over taste and health were made for the sake of convenience. Although WIC breakfast cereal was often regarded as low in taste value, it was valued high in convenience as a quick breakfast and snack option for household members. Fresh fruits and vegetables were valued and liked more than frozen or canned, but participants would often choose the latter with their cash value fruit and vegetable voucher (CVV) because they could prepare these more quickly and easily.

> *I do like the like frozen steam-fresh veggies. I do get a lot of those cause by the time I get home from work, it's almost 7- so I have to eat fast cause then it's time for him to get a bath and go to bed. I do buy a lot of fresh produce, but with the freezing stuff- sometimes that does it, I mean it's not as good for you, but it is easier to just pull something out of the freezer and put something in the microwave than just to sit and make a dinner for an hour.* ***Caregiver age 31***

WIC baby food was not considered as valuable for children's' health as much as "real food"; however, it was perceived as convenient to pack in a diaper bag when "on the go". Participants who fell on the low end of the food preparation skill spectrum valued very few of the WIC foods

and often were primarily enrolled in WIC for their infant's formula. These participants valued convenience over cost and relied on fast food and convenience foods not offered in WIC like canned ravioli, frozen pre-made "TV" dinners, or ramen noodle packets.

> *We eat at restaurants a lot (laughs). I probably eat breakfast at home, then we'll eat out, during the day. McDonalds (snickers) Cause I don't know how to cook!* ***Caregiver age 26***

D.2. Values and negotiations about cost impact how WIC foods are valued

Cost is a key factor affecting low-income participants' food values, but the way they think about food preparation and shopping determines which WIC foods are valued. As mentioned previously, those with cooking knowledge and ability to plan valued the foods in the WIC program more. Cost played a large role in the value of WIC for these participants also because they were accustomed to shopping and budgeting for staples that saved money but not always time. One participant spoke about learning how to cook, plan, and shop to save money.

> *Until I took those classes in high school- I used to think because healthy food was so expensive, I couldn't eat it. That's not the case. If you're eating out all the time, with a family of five, that can be anywhere from like 20 to 40 dollars. That is enough right there, for a week of healthy food. I think that how they were raised and their lifestyle has a lot to do with how they eat, and how they choose to spend their money. Yeah it is a lot easier to go buy the Hot Pockets, pizza rolls, take-n-bake pizza because it's right there- it's easy and it's quick. And I get that lifestyle choice. I feel like lifestyle has a big impact on that. If you're go go go go go family, it's much easier. But what people fail to realize is that even if you are a go go go family, if you take the five extra minutes a night to put some oatmeal in a jar and do overnight oats, you know you'll be able to heat healthy. If you take the few minutes to say I'm going to put something in the crock pot and turn it on low. I'm gonna come home from work and, hey- my dinner's done. You can eat healthy. It's just people don't think outside of the box. And they're just quicker to grab the processed junk because it's there.* ***Caregiver age 23***

Knowing how to make food "stretch" was a common thread among those who grew up with or currently had limited resources. Selective shopping, watching for sales, buying in bulk, and batch cooking were strategies employed to save money on food.

> *Growing up with [my mom] it was- you make things from scratch, you budget, you get a pound of ground beef, you split it between two meals. She had to work on a budget. She*

> *had, 2 kids and then herself and my dad to feed. And so she taught me how to cook and then just trying to be healthy, you know, eat properly, have the veggie, you know kinda stabilize, balance out the meal.* ***Caregiver age 25***

Often times however, participants prioritized cost over health due to circumstances of poverty and purchased low-cost foods that saved money and time.

> *I know how to shop; I know how to budget my money. I go in there, you can get like three, three four cases of like corn, green beans, um, let me see, I get beans, string beans, mix vegetables, what else, raviolis, or Spaghetti O's for almost like $70. For all of that and then the other stuff, you got your canned goods and now you're just going for the stuff like junk food stuff like the lunch meat the hot dogs, French fries and I get the like the chicken nuggets and stuff like that, you get like four bags of each, they like $2.15 a bag. If it's 2 for 6, all together get 12 bags. Knock that out and then you get your other stuff like your chicken, your Salisbury steaks, you know sides.* ***Caregiver age 40***

D.3. Values and negotiations about health impact how WIC foods are valued

Negotiations about health played a large role in in how participants value food and made choices. WIC helps simplify these negotiations. Aspects of health were important to many participants and their families, but this was often weighed against factors of convenience, cost, and taste. Participants spoke about desires to lose weight and eat healthier but emphasized the difficulty putting those lifestyle choices in motion. Certain participants placed value on limiting meat, fat, and/or sugar in their diets, but desires were met with limited success due to values about taste and limited knowledge about how to proceed with their goals.

> *I have to stop eating meat. But then- it be so good (laughs). I really want to change. We be looking in the mirror like damn, I'm getting fat. I think I gotta learn more about it before I can actually get started. I don't know what I can eat.* ***Caregiver age 22***

Many participants felt healthy food was expensive, and although they would like to buy more fruit, for example, their food budget did not allow for the amount they would like to have in their household each month so they had to prioritize cost over health when making food choices.

Although values of taste, convenience, and cost interfered with values of health, WIC made these value negotiations simpler for many participants because it saved them money and offered a variety of acceptable healthy foods. Participants particularly valued the cash value fruit and vegetable voucher and spoke about how it helps their family to keep healthy foods in the home.

> *It's yeah- healthier. The fact that they added vegetables and fruit, was a good thing because I love that. I was eating that late night all the time. That was good, cause vegetables and fruit are expensive especially when you're trying to get the more fresher kind.* ***Caregiver age 35***

Although participants valued the healthy foods WIC provides, many prioritized taste over health especially when it came to low-fat milk offered in WIC.

> *I got pregnant with my 1-year-old, they were like "try the 1% milk"- and I'm like – It's horrible. She was saying mix the 1% with the 2%, and I try to put more 1% than 2% and I didn't like it at all. I was like, no, it's not for me. The 2% don't carry as much fat as the whole milk. [WIC] prefer the 1% milk cause it like way healthier. But I prefer the 2% cause it tastes better.* ***Caregiver age 25***

Two participants spoke about improvements in the condition of epilepsy due to the effects of consuming a healthier diet. One participant who experiences grand mal seizures herself claimed that making healthier food choices like drinking milk or water instead of sugary drinks helped reduce the frequency of her seizures. She did not make this connection until she received and consumed the foods offered on WIC. The participant was not a frequent milk drinker and attributes the change in her health to the replacement of sugary beverages with healthier choices.

> *It's helping me a lot I can honestly say with my health a lot cause I have Grand Mal seizures. Before I started drinking milk, it was like my body did not feel like it had enough energy. I was always tired. I didn't know what was going on, but when I did start drinking it and building my vitamins, my energy, and my stamina up, it helped. It helped a lot, it really did. Before I was drinking pop- juice and Kool-Aid and stuff that wasn't healthy for me.* ***Caregiver age 24***

Valuing health in food choices was also motivated by the desire to keep children and other family members healthy. Child health was often prioritized over the participants' own health and many participants mentioned the transition of having children motivated them to value health in their food choices. They also mentioned that WIC assisted with this change.

> *When I did go grocery shopping, I was just getting junk food, junk food, junk food. And then I started coming to WIC and I noticed that I really do need to start eating healthy, especially if I'm finna have a baby, you need to show him that you eat healthy. So, yeah it actually did change, it changed a lot.* ***Caregiver age 24***

Although many participants valued WIC foods due to the health benefits provided to children, many spoke about the barriers to staying in the program for the duration of their eligibility due to a number of factors such as the cumbersome nature of attending appointments, scheduling appointments within a busy schedule, and encountering difficulties at the store when shopping for WIC foods. Due to the very high cost of infant formula, balancing the cost and inconvenience of staying in the program versus providing food for their children often occurred for parents who relied on formula. Some families unfortunately had to prioritize their time and patience over the food benefits provided in WIC once the child was older. Others prioritized WIC over these barriers, but acknowledged the healthiest choices for families are not the easiest choices, the cheapest choices, or the tastiest choices.

> *The sad thing is in this day and age- if WIC was not available I see it affecting maybe like the obesity problem in America because junk food's cheaper, soda's cheaper. Buying those healthier things that WIC lets you- if that's not there, then it's gonna be "oh here's a Lunchable, oh let's run through McDonald's and getchya a Happy Meal" or something. You know, you want them to be fed properly, but if they're strapped, they're gonna go with whatever the cheapest option to fill their stomachs, doesn't matter with what.*
> ***Caregiver age 25***

E. DISCUSSION

This work aims to inform future research and evaluation methods involving low-income caregivers' food choice behaviors, particularly behaviors connected to WIC foods and remaining in the WIC program. A review of studies focusing on decision making and eating behaviors recommends that future research should aim at creating more standardized and validated tools for assessing eating behaviors (in children and adults alike), be more longitudinal in nature[89], and be driven from multiple levels or dimensions shaped by the person's life-course[61]. Findings from this study were guided by the dimensions within the FCP model[14] and are summarized in Table VI.

TABLE VI: FOOD CHOICE DIMENSIONS AMONG LOW INCOME WIC CAREGIVERS

Life Course Events and Experiences	• Generational traditions and learning how to cook • Circumstances of poverty, stress, trauma • Transitions to adulthood, partnership, pregnancy, and living with children • Taking on responsibility for others
Influences	• Resources: social support, other government assistance, and level of autonomy over one's schedule: can I afford to do it without WIC? • Preferences: foods you were "raised on" • Other family members: desire to eat better for children, responsibility for others
Personal Food System	• Prioritization and negotiations over values of convenience, cost, health, and taste. • Strategies for attending WIC appointments, shopping, planning meals: planning, budgeting, making sacrifices or acquiring skills where necessary • Routines: Can WIC work with my schedule/lifestyle? Are these foods useful in my day-to-day life?

This study was novel in that the dimensions of the FCP were used to understand the framework by which caregivers receiving WIC place priority and value on the components of the WIC program. WIC offers nutritious food and is associated with improved health outcomes for its participants at all levels. However, if these benefits are not prioritized due to multiple influences and factors within the personal food system, they go unredeemed and intention to remain in the program may decrease. It is important to understand the life course events and circumstances that impact these value systems as well. Participants who learned how to cook and take responsibility for others at an early age, tended to value the WIC program and its benefits more. Other studies have found that food management skills (e.g., physical and mental ability to keep foods costs down and prepare meals) are linked to higher self-esteem and higher levels of food choice capacity[81]. For those facing challenging circumstances and changing events in their lives, this capacity becomes limited[57,62]. Not all participants in WIC have the social capital needed for cooking. Many lack the autonomy and time to plan meals. Although caregivers can play a key role in the dietary health of children, studies have found that disparities in resources, uncertain access to affordable healthy food, personal family stressors, and time constraints impact low income families' abilities to feed themselves and their children in a healthy way[77-79] Jabs et al. found when disadvantaged women were asked if they could change one thing to improve their own health and/or the health of their family, the most frequent response was the need for more time[62]. A previous study on the factors affecting low-income women's food choices found that although many of these women would like to regularly consume healthful food like fresh fruits and vegetables, such food was perceived as unaffordable [127]. The cost of healthy food outside the WIC program also played a large role in the perceived value of the WIC food packages for the participants in this study.

Participants' own preferences for the foods in WIC were highly influenced by the type of foods they were accustomed to eating. When making choices about food, individuals tend to use more automatic processes such as habits or behavior cues than ones that require reflection on one's intention or negotiations with oneself [83]. It is impossible to alter past eating behaviors and it is illogical to offer foods that are not beneficial to participants' health, so the solution to increasing the value of WIC foods for participants who do not prefer them will not be simple. Participants did, however, highly value WIC when choice among several healthy options was offered (e.g., produce and whole grains). Introducing a greater variety of healthy food choices where participants have the most negative opinions about restrictions (e.g., milk) may improve the value of the program and caregivers' willingness to remain enrolled.

This study is not without limitations. Some results of this study may not be generalizable to WIC participants outside the state of Illinois. Other states have may have slightly different approved food lists (e.g., allowance of 2% milk in some states) or have switched over from using paper vouchers at checkout to an electronic benefits transfer card (EBT). These differences could impact the value participants place on the food packages and their negotiations about redeeming benefits for their personal food system. This study was conducted with current WIC parents/caregivers that may or may not have left the program in the past. To get a broader understanding of how participants value WIC foods, more research needs to be conducted with former WIC parents/caregivers who have left the program and not returned.

F. IMPLICATIONS FOR RESEARCH AND PRACTICE

Since dietary intakes of young children are closely linked to caregivers' preferences and feeding practices, efforts to improve child nutrition programs must involve understanding food

choice from the low-income caregiver's perspective. Future efforts to improve WIC must consider how lack of time and autonomy impact participants' ability to value WIC foods and remain in the program. Participants' past experience and ability to cook and plan meals impacted how they valued WIC foods. Interactive culinary arts and home economics opportunities should be made more accessible to those with limited social support and cooking skills. These opportunities should also be incorporated more into nutrition education efforts. To increase satisfaction with the program after the period of infancy, future revisions of the WIC food packages should include more choices that also align with current nutrition science and health recommendations.

APPENDICES

APPENDIX I. WIC FOOD PACKAGES BY PARTICIPANT CATEGORY [28]

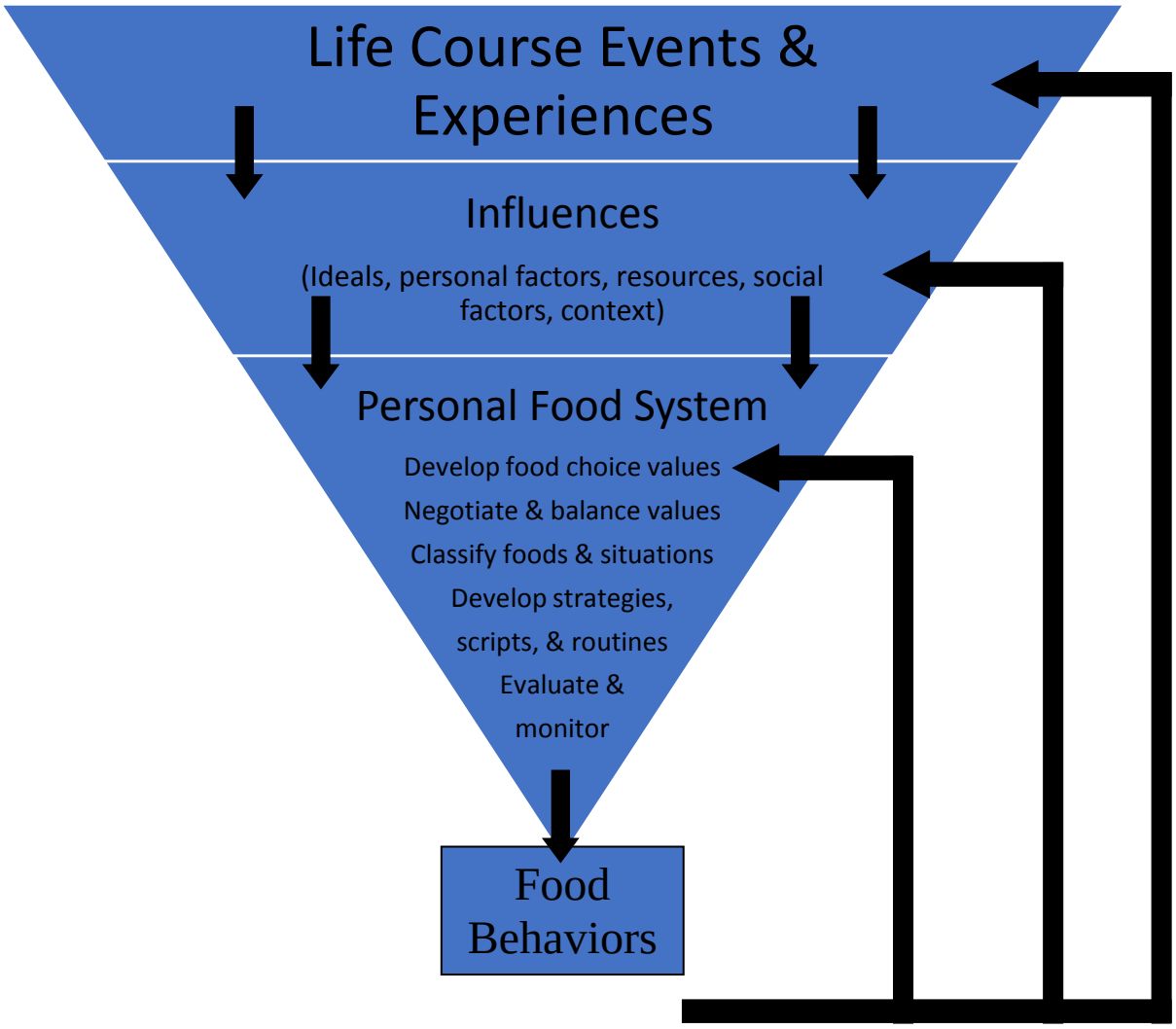
SNAPSHOT of the WIC Food Packages						
Maximum Monthly Allowances of Supplemental Foods for Infants in Food Packages I, II, and III						
	Fully Formula fed (FF)		**Partially Breastfed (BF/FF)**		**Fully Breastfed (BF)**	
Foods	**Food Packages I-FF and III-FF A: 0-3 months B: 4-5 months**	**Food Packages II-FF and III-FF 6-11 months**	**Food Packages I-BF/FF and III-BF/FF A: 0 to 1 month B: 1-3 months C: 4-5 months**	**Food Packages II-BF/FF and III-BF/FF 6-11 months**	**Food Package I-BF 0-5 months**	**Food Package II-BF 6-11 months**
WIC Formula	A: 806 fl oz reconstituted liquid concentrate B: 884 fl oz reconstituted liquid concentrate	624 fl. oz. reconstituted liquid concentrate	A: 1 can powder B: 364 fl oz reconstituted liquid concentrate C: 442 fl. oz. reconstituted liquid concentrate	312 fl. oz. reconstituted liquid concentrate		
Infant cereal		24 oz		24 oz		24 oz
Baby food fruits and vegetables		128 oz		128 oz		256 oz
Baby food meat						77.5 oz

APPENDIX I. WIC food Packages by Participant Category (CONTINUED)[28]

SNAPSHOT of the WIC Food Packages				
Maximum Monthly Allowances of Supplemental Foods for Children and Women				
Foods	**Children**	**Women**		
	Food Package IV: 1 through 4 years	**Food Package V: Pregnant and Partially Breast- feeding (up to 1 year postpartum)**	**Food Package VI: Postpartum (up to 6 months postpartum)**	**Food Package VII: Fully Breastfeeding (up to 1 year post-partum)**
Juice, single strength	128 fl oz	144 fl oz	96 fl oz	144 fl oz
Milk	16 qt	22 qt	16 qt	24 qt
Breakfast cereal [2]	36 oz	36 oz	36 oz	36 oz
Eggs	1 dozen	1 dozen	1 dozen	1 dozen
Fruits and Vegetables	$6.00 in cash value vouchers	$10.00 in cash value vouchers	$10.00 in cash value vouchers	$10.00 in cash value vouchers
Whole grains[3]	2 lb	1lb		1lb
Fish (canned)[4]				30 oz
Legumes, dry or canned **and/or** Peanut butter	1 lb(64 oz canned) **Or** 18 oz	1 lb (64 ounce canned) **And** 18 oz	1 lb (64 ounce canned) **Or** 18 oz	1 lb (64 ounce canned) **And** 18 oz

[1] Allowable options for milk alternatives are cheese, soy beverage, and tofu.
[2]At least one half of the total number of breakfast cereals on State agency food list must be whole grain.
[3]allowable options are whole grain bread, whole wheat pasta, brown rice, bulgur, oatmeal, whole-grain barley, soft corn or whole wheat tortillas.
[4]Allowable options for canned fish are light tuna, salmon, sardines, and mackerel.

APPENDIX II. FOOD CHOICE PROCESS MODEL[14]



APPENDIX III. SURVEY RECRUITMENT SCRIPT

University of Illinois at Chicago (UIC)

Longitudinal Survey Recruitment Script (WIC Staff)

Evaluation of the 'WIC to 5' pilot program to improve child retention in the Illinois Special Supplemental Nutrition Program for Women, Infants, and Children.

Hi (Participants name),
Investigators at University of Illinois at Chicago (UIC) are inviting you to participate in a research study entitled: *Evaluation of the 'WIC to 5' pilot program to improve child retention in the Illinois Special Supplemental Nutrition Program for Women, Infants, and Children*. UIC is working to understand how clients' perceptions and experiences affect child participation in the WIC program.

Approximately 350 Parents/Caretakers will consent to participate in this research study.
To be eligible to participate, you must:

- Be at least 16 years of age
- Be the Parent/Caretaker of a child 3-6 months old currently enrolled in WIC and have not had their 6 month follow-up
-

The purpose of this study is to evaluate a program intended to increase child participation in WIC. We would like to understand your perceptions of your experience with WIC and whether these influence your intention to keep your child in the WIC program.

If you agree to participate in this study, the UIC research team will ask you to complete 4 surveys over the next 2 years. Each survey takes approximately 1-1.5 hours to complete. The UIC research team will conduct the first survey now. The other surveys will take place when your child is 7-8 months old, 13-14 months old, and 25-26 months old.
Your participation in this study is **voluntary**. Your decision whether or not to participate will not affect your current or future relationship with WIC or UIC. You have the right to refuse to be a part of the study. If you decide to participate and later change your mind, you can withdraw at any time.
Your identity and the information you provide will be kept confidential and only viewed by the UIC research staff. No identifying information about you and your family will be shared with **anyone** including clinic staff or other families participating in the project. After the study is completed, information from the study will be summarized in reports, oral presentation and/or publications.
If you choose to participate you will receive a $20 gift for after completing each survey and a messenger bag with the study logo after completing the last survey.
Do you have any questions about the study?
If it is okay to have the UIC interviewer contact you, please sign this release of information form. If you sign the release of information form, I will give your contact information to the UIC Interviewer. The UIC interviewer will then contact you directly to provide information about the study, assess your eligibility, and find out if you are willing to participate. If you are willing to participate, the UIC interviewer will schedule a time to meet with you and ask you to sign a formal consent. Again your participation is voluntary

APPENDIX IV: SURVEY PARTICIPANT ELIGIBILITY FORM

University of Illinois at Chicago (UIC)
Longitudinal Survey Participant
Eligibility Form

WIC Retention Study

Date: _____

Do you speak English or Spanish? Yes No

Are you 16 years or older? Yes No

What is your child's birthdate? _____

Interviewer: Is child between 3 and 6 months of age? Yes No

Is your child currently enrolled in WIC? Yes No

Has your child had his/her 6 month WIC follow-up? Yes No

APPENDIX V: SURVEY PARTICIPANT CONSENT FORM

University of Illinois at Chicago (UIC)

Illinois WIC Retention Project

Participant Consent Form

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)
Examining WIC Retention Among Children.

Investigators at University of Illinois at Chicago (UIC) invite you to participate in a research study entitled: *The Special Supplemental Nutrition Program for Women, Infants, and Children Examining WIC Retention Among Children.*

Who is conducting the research study?
This study is being conducted by Dr. Angela Odoms-Young, Assistant Professor in the Department of Kinesiology and Nutrition and Dr. Marian Fitzgibbon, Professor in the College of Medicine at the University of Illinois at Chicago in collaboration with the Illinois Department of Human Services (IDHS). The project is funded by the State of Illinois through a grant from the United States Department of Agriculture (USDA). _____ (Name of Interviewer) is a member of the project staff.

What is this study about?
The purpose of this study is to evaluate a program intended to increase child participation in WIC. We would like to understand your perceptions of your experience with WIC and whether these influence your intention to keep your child in the WIC program. Approximately 350 people are expected to be involved in this research study. Four WIC agencies involved in this study will be trying out the new program, and four agencies will not be. Your participation in this study will be the same no matter if your local WIC agency is trying out the new program or not. The interviews will be conducted at your local WIC agency or over the telephone.

What will I be asked to do if I choose to participate?
As a participant in this study, you are being asked to participate in 4 interviews between now and when you child is around 2 years old.

1) **Baseline interview:** if you are eligible for the study (have a child aged 3-6 months enrolled in the WIC program) we will conduct a baseline interview (first interview). This interview will take approximately 1- 1.5 hours to complete and will ask questions about you and your child aged 3-6 months who is enrolled in the WIC program, your attitudes and your perceptions of your experience with WIC and how these things influence your intention to keep your child in the WIC program.

2) **Follow-up Interviews:** when your child is 7-8, 13-14, and 25-26 months of age we will conduct follow up interviews to assess again your attitudes and your perceptions of your experience with WIC during the program to see if they have changed and to see how these things have influenced your intention to keep your child in the WIC program.

In addition, you are being asked to provide your WIC Family ID number so that we can understand more about you your child's participation in WIC such as looking at dates of certification, dates of pick up and redemption of food instruments, location of where food instruments are redeemed, plus other things including you and child's heights and weights and results of your child's nutrition assessments. While you are not required to give your WIC ID number to be eligible to participate in this study, providing your WIC ID number will allow us to better understand more of the reasons why families keep their child in the WIC program. Please check if you agree to provide your WIC ID number. Again, you are still able to participate in this study if you do not provide your WIC ID.

____ Yes, I consent to provide my WIC ID number.
____ No, I do not consent to provide my WIC ID number.

Are there benefits for taking part in the study?
There are no direct benefits from participation in the research. Results from the study will be used to provide insights to help identify characteristics of participants/families that may need more support to remain in the program. In the long term, the hope is that the information will help improve the WIC program.

What are the costs for participating in this research?
If you take part in this study, you are responsible for your own transportation costs.

Are there any risks to being a part of this project?
To the best of our knowledge, there is minimal risk for participating in this project. Risks may include a breach of privacy (others may find out the subject is participating in research) and/or confidentiality (others may find out information about the subject collected or disclosed during the research). There are no physical risks involved. Your participation in this study, including providing your WIC ID number, will not affect your WIC services in any way. You should feel free to ask questions at any time. You do not have to answer any questions that make you feel uncomfortable.

What will happen to the information I share?
The information you provide will be kept confidential and only viewed by the research staff. All survey data will be stored separately from your personal information (name, contact information and consent form) in a locked file cabinet and on a password-protected computer. If you provide your WIC ID number, IDHS staff will send the information described above from your WIC records to research staff. This information will also be stored on a password-protected computer. Project staff members are trained to respect your privacy. All participants will be assigned a unique identification number. Digital files will be destroyed after the final paper/report is published (approximately 5 years). After completion, information from the study will be summarized in reports, oral presentations and/or publications.

What about privacy and confidentiality?
All members of our research team will know you are participating in this research study. However, in some cases staff at the WIC agency where you receive services will also know you

are a participant in this study. If you provide your WIC ID number, some staff at IDHS will know you are a participant in this study. Information about you will only be disclosed to others with your written permission, or if necessary to protect your rights or welfare or if required by law. In some cases, study information which identifies you and the consent form signed by you could be reviewed by the UIC Office of the Protection of Research Subjects/State of Illinois Auditors for auditing purposes. When the results of the research are published or discussed in conferences and shared with IDHS, no information will be included that would reveal your identity. Only a summary report will be provided. If the researchers become aware of any abuse and/or neglect of yourself or others, the researchers may report this to the appropriate authorities without your consent." Can I withdraw from the study?
You can choose whether to be in this study or not. If you agree to be in this study, you may withdraw at any time without consequences of any kind and will still receive compensation as described above.

Who do I contact if I have questions?

If you have questions about the study, you may contact Dr. Angela Odoms-Young at (312) 355-0383.

What will I receive if I choose to participate?
If you choose to participate you will receive a $20 cash gift for completing each survey. It will be delivered in person or mailed after the telephone survey. At the end of the study, you will receive one messenger bag with the study logo. If you withdraw from the study at any time, you will be compensated for the surveys that you have completed and $10 for any surveys that are at least halfway completed.

What are my rights as a research subject?
If you feel you have not been treated according to the descriptions in this form, or you have any questions about your rights as a research subject, you may call the Office for the Protection of Research Subjects (OPRS) at 312-996-1711 (local) or 1-866-789-6215 (toll-free) or e-mail OPRS at uicirb@uic.edu.

Agreement: The study has been explained to me by _____ (Name of Graduate Assistant or Researcher), and she has answered my questions and concerns. He/she has provided me with a copy of the consent form. I understand this consent form and the meaning of this information. I understand what I am being asked to do and my rights as a study participant. I understand that I may stop my participation at any time. I also understand that if there are any significant changes in the study, I will be told and given the opportunity to stop my participation.

Remember:
Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free to withdraw at any time without affecting that relationship.
I have read the consent form and agree to participate in this study as described.
☐ I consent ☐ I do not consent

We are planning to conduct follow-up studies to better understand your experiences with WIC benefits and services. Would you be willing to be contacted about follow-up studies?

____ Yes, you can contact me about future research studies about WIC.

____ No, I don't want to be contacted about future research studies about WIC.

_____	_____	_____
Participant's Signature	Printed Name	Date

I, _____ certify that I have fully explained the study to the above participant(s). I also agree to do everything possible to maintain participants' confidentiality and answer any question that may arise.

_____	_____
Signature of Person Obtaining Consent	Date (must be same as subject's)

_____
Printed Name of Person Obtaining Consent

APPENDIX VI: 'WIC to 5' STUDY CONTINUING REVIEW INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice
Continuing Review

August 29, 2016

Angela Odoms-Young, PhD
Kinesiology and Nutrition
1919 W Taylor Street
Human Nutrition and Kinesiology, M/C 516
Chicago, IL 60612
Phone: (312) 413-0797 / Fax: (312) 413-3699

RE: Protocol # 2014-0518
"Evaluation of the 'WIC to 5' Pilot Program to Improve Child Retention in the Illinois Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)"

Dear Dr. Odoms-Young:

Your Continuing Review was reviewed and approved by the Expedited review process on August 25, 2016. You may now continue your research.

Please note the following information about your approved research protocol:

Please note that this research did not have Institutional Review Board (IRB) approval from midnight August 12, 2016 until August 25, 2016.

Please note that stamped and approved .pdfs of all recruitment and consent documents will be forwarded as an attachment to a separate email. OPRS/IRB no longer issues paper letters and stamped/approved documents, so it will be necessary to retain these emailed documents for your files for auditing purposes.

Please note that the changes proposed in the amendment application submitted via this continuing review have not been approved. The amendment application must be submitted separately for its independent review.

Protocol Approval Period: August 25, 2016 - August 25, 2017
Approved Subject Enrollment #: 590 (142 enrolled)
Performance Sites: a) UIC, b) Roseland Community Hospital, c) Macon County Health Department, IL, d)Vermilion County Health Department, e) Peoria City/County Health Department, f) Kankakee County Health Department, g) McLean County Health Department, h) DeKalb County Health Department, i) Sinai Community Institute
Sponsor: US Department of Agriculture
PAF#: 00023294
Grant/Contract No: Not available
Grant/Contract Title: WISP-10-IL Concept Paper
Research Protocol(s):

a) Research Protocol; Version 9; 02/02/2015

Recruitment Material(s):

a) Email Letter for Staff Web-Based Survey Sent at Baseline and 22 Months Follow-up; Version 1; 06/27/2014
b) WIC Retention Observation/Poll Recruitment Script and Altered Consent Form; Version 2; 11/05/2014
c) WIC Retention 6 and 12 Month Eligibility Form; Version 3; 11/05/2014
d) WIC Retention Participant Interview Eligibility Form, Version 2, 02/02/2015
e) WIC Retention Participant Interview Recruitment Form, Version 2, 02/02/2015
f) 3-6 Month Eligibility Form; Version 4; 07/02/2015
g) Facebook recruitment notice; Version 1; 07/08/2015
h) Longitudinal Survey Recruitment Script; Version 2; 08/05/2015
i) Study Participant Flyer; Version 3; 08/05/2015
j) Longitudinal Survey Telephone Recruitment Script; Version 2; 08/05/2015
k) Tear-Off Recruitment Flyer #3; Version 1; 08/26/2015
l) Fill-In Recruitment Flyer #3; Version 1; 08/26/2015
m) Tear-Off Recruitment Flyer #2; Version 1; 08/26/2015
n) Tear-Off Recruitment Flyer #1; Version 1; 08/26/2015
o) Fill-In Recruitment Flyer #1; Version 1; 08/26/2015
p) Fill-In Recruitment Flyer #2; Version 1; 08/26/2015
q) General Recruitment Flyer #1; Version 1; 08/26/2015
r) General Recruitment Flyer #2; Version 1; 08/26/2015
s) General Recruitment Flyer #3; Version 1; 08/26/2015
t) Longitudinal Survey Recruitment Script WIC Staff; Version 1; 09/21/2015
u) General Recruitment Letter; Version 1; 09/21/2015

v) WIC to 5 Recruitment Text Message, Version 1, 11/10/2015

Informed Consent(s):

a) Staff Survey Consent Form; Version 2; 06/27/2014
b) Staff Focus Group Consent Form; Version 1; 11/05/2014
c) Participant Focus Group; Version 2; 01/08/2015
d) WIC Retention Participant Interview Consent Form, Version 2, 02/02/2015
e) WIC Retention Participant Survey Consent Form; Version #7; 07/02/2015
f) A waiver of consent has been granted under 45 CFR 46.116(d) for the observations only; minimal risk.
g) A waiver of documentation of informed consent has been granted under 45 CFR 46.117 and an alteration of consent has been granted under 45 CFR 46.116(d) for the interview done via telephone; minimal risk; verbal consent will be obtained.
h) A waiver of documentation of informed consent has been granted under 45 CFR 46.117 for the interview done via telephone; minimal risk; verbal consent will be obtained.
i) A waiver of documentation of informed consent has been granted under 45 CFR 46.117 and an alteration of consent has been granted under 45 CFR 46.116(d) for the post visit survey; minimal risk; verbal consent will be obtained.

Parental Permission(s):

a) A waiver of parental permission has been granted under 45 CFR 46.116(d) for minor parents; it has been determined that the research is designed for a subject population for which parental or guardian permission is not a reasonable requirement to protect the subjects; appropriate mechanisms are in place for protecting minors.

Additional Determinations for Research Involving Minors:

The Board determined that this research satisfies 45CFR46.404, research not involving greater than minimal risk. A waiver of parental permission has been granted in accordance with 45 CFR 46.116(d). Wards of the State may not be enrolled unless the IRB grants specific approval and assures inclusion of additional protections in the research required under 45CFR46.409. If you wish to enroll Wards of the State contact OPRS and refer to the tip sheet.

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific category:

(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
08/17/2016	Continuing Review	Expedited	08/25/2016	Approved

Please remember to:
→ Use your **research protocol number** (2014-0518) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the guidance,
"**UIC Investigator Responsibilities, Protection of Human Research Subjects**"
(*http://research.uic.edu/irb/investigators-research-staff/investigator-responsibilities*)

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.
We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 413-0241. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,
Ibraheem Oguntade
IRB Coordinator, IRB #2
Office for the Protection of Research Subjects

Enclosure(s) sent as attachment to a separate email:

Please note that stamped and approved .pdfs of all recruitment and consent documents will be forwarded as an attachment to a separate email. OPRS/IRB no longer issues paper letters and stamped/approved documents, so it will be necessary to retain these emailed documents for your files for auditing purposes.

cc: Ross A. Arena, Kinesiology and Nutrition, M/C 898
OVCR Administration, M/C 672

APPENDIX VII: 'WIC to 5' STUDY DEMOGRAPHIC SURVEY MEASURES

Parent Demographic Interview

We are very interested in what you think, and there is no right or wrong answer to any of these questions. The interview will last approximately 30 to 45 minutes. As I mentioned in the consent form, feel free to let me know if any of the questions make you feel uncomfortable, and we will move on to the next question. Your individual responses will not be shared with your WIC provider or anyone at this site. OK, let's get started. First, I would like to ask a few questions about you and your household.

31) What is YOUR date of birth?

_____

32) What is your gender?

◯ Man/Male
◯ Woman/Female
◯ Other (specify below)
(Interviewer: Do not read responses)

33) [If "Other"] Please specify.

_____

34) What is the highest grade or year of school you completed? [Show response card]

◯ Eighth grade or less
◯ Some high school
◯ High school graduate
◯ GED
◯ Some college, no degree
◯ Associate's degree
◯ Bachelor's degree
◯ Graduate degree
◯ Other

35) [ONLY ask this question if participant answers "Other"]

How many years of school have you completed?

_____

36) Which of these best describes your employment status?

◯ Work Full-time
◯ Work Part-time
◯ Not Employed
◯ Full-time student
◯ Stay-at-home Parent / Homemaker
◯ Other

37) [If "Other"] Please specify.

_____

38) Which of these best describes your relationship status?

☐ Married
☐ Separated
☐ Divorced
☐ Single, never married
☐ In a relationship, but not living with partner
☐ Living with partner
☐ Widowed

39) Which of these categories best describes your combined family income for the last 12 months? This includes income from all sources: wages, veteran's benefits, and help from relatives. [Show response card]

◯ Less than $10,000
◯ $10,000 - $19,999
◯ $20,000 - $29,999
◯ $30,000 - $39,999
◯ $40,000 - $49,999
◯ $50,000 - $59,999
◯ $60,000 - $69,999
◯ $70,000 or more
◯ Refused (Do not read)

The next questions are about your racial or ethnic group and where you were born. They ha nothing to do with your immigration status.

44) Are you Spanish/Hispanic/Latino?

- ◯ No, not Spanish/Hispanic/Latino
- ◯ Yes - Mexican, Mexican-American, or Chicano
- ◯ Yes - Puerto Rican
- ◯ Yes - Cuban
- ◯ Yes - Mixed or Other Spanish/Hispanic/Latino (specify below)

45) [If "Other"] Please specify.

_____

46) How would you describe your race?

- ◯ African American or Black
- ◯ White or Caucasian
- ◯ American Indian or Alaska Native
- ◯ Native Hawaiian, Samoan, or other Pacific Isla
- ◯ Asian Indian
- ◯ Other Asian
- ◯ Mixed Race or Multiracial (specify below)
- ◯ Other (specify below)

47) [If "Mixed Race," "Multiracial," or "Other"] Please specify, if you don't mind.

[If refuse, write N/A]

_____

48) Where were you born? [If "United States," skip to language questions].

- ◯ United States
- ◯ Outside the United States

49) [If born outside the US]
How many years have you lived in the US?

- ◯ < 5 years
- ◯ 5-10 years
- ◯ 11-15 years
- ◯ 16-20 years
- ◯ 21-25 years
- ◯ >25 years

50) Do you read or speak any languages other than English?

- ◯ Yes
- ◯ No

Wic And Other Public Assistance

We will now move on to questions about your household and your participation in WIC as well as other assistance programs.

61) How many total children do you have? _____

[Interviewer: Ask the ages of each of the participant's children beginning from oldest to youngest. If participant has more than 6 children, include information in margin. SKIP if participant is not the mother]

62) How old is your first child?
- ◯ 0-1 year
- ◯ 2-4 years
- ◯ 5-10 years
- ◯ 11-13 years
- ◯ 14-18 years
- ◯ Older than 18 years

63) Does or did this child ever receive WIC?
- ◯ Yes, currently in WIC
- ◯ Yes, in the past but not currently
- ◯ Yes, in the past but now too old (5 years or older)
- ◯ No, never
- ◯ N/A or Refused

64) How old is your second child?
- ◯ 0-1 year
- ◯ 2-4 years
- ◯ 5-10 years
- ◯ 11-13 years
- ◯ 14-18 years
- ◯ Older than 18 years

65) Does or did this child ever receive WIC?
- ◯ Yes, currently in WIC
- ◯ Yes, in the past but not currently
- ◯ Yes, in the past but now too old (5 years or older)
- ◯ No, never
- ◯ N/A or Refused

66) How old is your third child?
- ◯ 0-1 year
- ◯ 2-4 years
- ◯ 5-10 years
- ◯ 11-13 years
- ◯ 14-18 years
- ◯ Older than 18 years

67) Does or did this child ever receive WIC?
- ◯ Yes, currently in WIC
- ◯ Yes, in the past but not currently
- ◯ Yes, in the past but now too old (5 years or older)
- ◯ No, never
- ◯ N/A or Refused

*questionnaire continues up to 8 children

Now, please tell us how many people in each category in your household CURRENTLY RECEIVE WIC (including yourself and your child/children)

80) Pregnant women
_____
(WIC participants only)

81) Women who had a baby within the past 6 months (but NOT breastfeeding)
_____
(only count current WIC recipients)

82) Breastfeeding women
_____
(only count current WIC recipients)

83) Infants or babies, less than 1 year old
_____
(only count current WIC recipients)

84) Children, between 1 and 2 years old
_____
(only count current WIC recipients)

85) Children, 2 and older
_____
(only count current WIC recipients)

86) When did you enroll in WIC for (name of 3-5 month old child)?
- ◯ During 1st trimester of pregnancy (week 1 to the end of week 12)
- ◯ During 2nd trimester of pregnancy (week 13 to t end of week 26)
- ◯ During 3rd trimester of pregnancy (week 27 to tl end of pregnancy)
- ◯ During the first month of your child's life
- ◯ After the first month of your child's life

87) Have you received WIC services at a any other clinic during this pregnancy or since (name of index child) was born?
- ◯ Yes
- ◯ No

88) [If "Yes"] Please specify.
_____

89) Do you currently receive WIC foods for yourself?
- ◯ Yes
- ◯ No
- ◯ Don't know

90) What is (name of child) currently being fed?
- ◯ Breastmilk only
- ◯ Formula only
- ◯ Breastmilk and formula only
- ◯ Breastmilk plus solid foods
- ◯ Formula plus solid foods
- ◯ Breastmilk, formula, and solid foods

APPENDIX VIII: WIC FOOD PREFERENCES QUESTIONNAIRE

WIC Foods

Now I am going to ask you some questions about foods you may or may not have gotten with WIC.

How much would you like or dislike receiving the following foods from WIC...

		Very much dislike	Dislike	Neutral/No opinion	Like	Very much like	N/A or refuse
1)	Infant Formula	○	○	○	○	○	○
2)	Infant Cereal	○	○	○	○	○	○
3)	Baby food fruits and vegetables	○	○	○	○	○	○
4)	Baby food meat	○	○	○	○	○	○
5)	100% Juice	○	○	○	○	○	○
6)	Whole milk	○	○	○	○	○	○
7)	1% or skim milk	○	○	○	○	○	○
8)	Breakfast cereal	○	○	○	○	○	○
9)	Cheese	○	○	○	○	○	○
10)	Eggs	○	○	○	○	○	○
11)	Fresh fruits and vegetables	○	○	○	○	○	○
12)	Frozen fruits and vegetables	○	○	○	○	○	○
13)	Canned fruits and vegetables	○	○	○	○	○	○
14)	White potatoes	○	○	○	○	○	○
15)	Whole grain bread	○	○	○	○	○	○
16)	Corn tortillas	○	○	○	○	○	○
17)	Brown rice	○	○	○	○	○	○
18)	Whole wheat pasta	○	○	○	○	○	○
19)	Oatmeal	○	○	○	○	○	○
20)	Fish (canned)	○	○	○	○	○	○
21)	Beans, dry or canned	○	○	○	○	○	○
22)	Peanut butter	○	○	○	○	○	○

APPENDIX IX: WIC FOOD PACKAGE VALUE QUESTIONNAIRE

Now, please think about the different food packages you may have received over the course of your time with WIC. About how much money per month do you think they are worth? There is no right or wrong answer, just give us your best guess.
NOTE: Interviewer do not read responses. Fill in which response is closest to what the respondent says.

	$0-$10	$10-$20	$20-$30	$30-$40	$40-$50	$50-$60	$60-$70	$70-$80	$80-$90	$90-$100	$100 or more	N/A or Don't know
23) Amount of food you receive from WIC each MONTH when pregnant	○	○	○	○	○	○	○	○	○	○	○	○
24) Amount of food you and your baby receive from WIC each month when s/he is less than 1 year old (total combined)	○	○	○	○	○	○	○	○	○	○	○	○
25) Amount of food your child receives or will receive from WIC each month AFTER s/he turns 1 year old	○	○	○	○	○	○	○	○	○	○	○	○

These questions ask about whether the benefits you receive are worth the time and effort required to stay enrolled in WIC.

Do you agree or disagree with the following statements?

	Disagree	Somewhat disagree	Neutral/No opinion	Somewhat agree	Agree	N/A
292) The foods that I receive for myself are worth the time and effort required to stay in WIC.	○	○	○	○	○	○
293) The foods that I receive for my infant are worth the time and effort required to stay in WIC.	○	○	○	○	○	○
294) The foods that I receive for my child(ren) aged 1-5 years are worth the time and effort required to stay in WIC.	○	○	○	○	○	○

APPENDIX X: WIC AGENCY CASELOADS BY PARTICIPANT CATEGORY

Agency Caseloads by Participant Category (as of October 2013)												
	Women						**Infants** aged 0-11 months		**Children** Aged 1-5 years		**Totals**	
Agency	Pregnant		Breastfeeding		Postpartum (non-breastfeeding)							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Dekalb	259	11.93	163	7.51	126	5.80	497	22.89	1,126	51.87	2,171	100
Kankakee	390	13.90	128	4.56	257	9.16	738	26.30	1,293	46.08	2,806	100
Macon	303	10.92	129	4.65	257	9.26	756	27.24	1,330	47.93	2,775	100
McLean	409	15.34	182	6.83	163	6.11	669	25.09	1,243	46.62	2,666	100
Roseland	374	9.69	289	7.49	319	8.27	1,151	29.83	1,726	44.73	3,859	100
Mt. Sinai	1,015	9.98	536	5.27	789	7.76	3,076	30.24	4,757	46.76	10,173	100
Vermilion	345	12.58	64	2.33	225	8.20	706	25.74	1,403	51.15	2,743	100

APPENDIX XI: WIC AGENCY CASELOADS BY RACE/ ETHNICITY

Agency Caseloads by Race/ Ethnicity (as of October 2013)														
Agency	White		Black		Hispanic		American Indian/ Alaskan		Asian/Pacific Islander		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Dekalb	926	42.65	480	22.11	714	32.89	3	0.14	38	1.75	10	0.46	2,171	100
Kankakee	1,124	40.06	835	29.76	821	29.26	4	0.14	12	0.43	10	0.36	2,806	100
Macon	1,519	54.74	1,104	39.78	113	4.07	4	0.14	25	0.90	10	0.36	2,775	100
McLean	1,370	51.39	691	25.92	544	20.41	3	0.11	57	2.14	1	0.04	2,666	100
Roseland	31	0.80	3,592	93.08	230	5.96	1	0.03	3	0.08	2	0.05	3,859	100
Mt. Sinai	195	1.92	4,502	44.25	5,368	52.77	10	.10	47	0.46	51	0.50	10,173	100
Vermilion	1,572	57.31	224	33.69	242	8.82	1	0.04	2	0.07	2	0.07	2,743	100

APPENDIX XII: IN-DEPTH INTERVIEW RECRUITMENT SCRIPT

University of Illinois at Chicago (UIC)
In-depth Interview Recruitment Script

An In Depth Look at Factors that Influence Food Choice and Perceived Value of WIC Foods among WIC Caregivers.

Hello (Participant's name),

Investigators at University of Illinois at Chicago (UIC) are inviting you to participate in a research study entitled: *An In-Depth Look at Factors that Influence Food Choice and Perceived Value of WIC Foods among WIC Caregivers.* **UIC is working to understand how clients' perceptions and experiences affect child participation in the WIC program.**

Approximately 40 Parents/Caregivers will consent to participate in this research study.
To be eligible to participate, you must:

- Be the Parent/Caregiver of a child currently enrolled in WIC or previously enrolled in WIC
- Be enrolled and completed the first survey in our longitudinal study: *An Evaluation of the 'WIC to 5' pilot program to improve child retention in the Illinois Special Supplemental Nutrition Program for Women, Infants, and Children.*

The purpose of this study is to understand your perceptions, your experience with WIC, what you think of WIC foods, and whether these influence your intention to keep your child in the WIC program. As a participant in this study, will be asked to participate in an individual 45-60-minute semi-structured interview. The interview will be conducted at your local WIC location or over the telephone. If you agree the interview will be audio-taped.
Your participation in this study is **voluntary**. Your decision whether or not to participate will not affect your current or future relationship with UIC. You have the right to refuse to be a part of the study. If you decide to participate and later change your mind, you can withdraw at any time.
The information you provide will be kept confidential and only viewed by the research staff.
No identifying information about you will be shared with **anyone**.
After the study is completed, information from the study will be summarize in reports, oral presentation and/or publications.
If you choose to participate you will receive a $20 cash for completing the interview or focus group.

Do you have any questions about the study?
If you meet the eligibility requirements and would like to participate in the study, please sign the consent form. Again, your participation is voluntary

APPENDIX XIII: IN-DEPTH INTERVIEW PARTICIPANT CONSENT FORM

Illinois WIC Retention Project
University of Illinois at Chicago (UIC)

In-Depth Interview Participant Consent Form

An In-Depth Look at Factors that Influence Food Choice and Perceived Value of WIC Foods among WIC Caregivers.

Investigators at University of Illinois at Chicago (UIC) invite you to participate in a research study entitled: *An In-Depth Look at Factors that Influence Food Choice and Perceived Value of WIC Foods among WIC Caregivers.* This study is being conducted as part of the larger study: *An Evaluation of the 'WIC to 5' pilot program to improve child retention in the Illinois Special Supplemental Nutrition Program for Women, Infants, and Children* which you have previously consented to be enrolled.

Who is conducting the research study?
This study is being conducted by Dr. Angela Odoms-Young, Assistant Professor in the Department of Kinesiology and Nutrition and Dr. Marian Fitzgibbon, Professor in the College of Medicine at the University of Illinois at Chicago in collaboration with the Illinois Department of Human Services (IDHS). The project is funded by the State of Illinois through a grant from the United States Department of Agriculture (USDA). _____ (Name of Interviewer) is a member of the project staff.

What is this study about?
The purpose of this study is to understand your perceptions of your experience with WIC, what you think of WIC foods, and whether these influence your intention to keep your child in the WIC program. Approximately 40 people are expected to be involved in this part of the research study. The interviews will be conducted at your local WIC agency or over the telephone.

What will I be asked to do if I choose to participate?
As a participant in this study, you are being asked to participate in an individual 45-60-minute semi-structured interview. The interview will be conducted at your local WIC location or over the telephone. If you agree the interview will be audio-taped.

What will I receive if I choose to participate?
If you choose to participate you will receive a $20 cash gift for completing the in-depth interview. It will be delivered in person or mailed after the telephone interview. If you withdraw from the study at any time, you will be compensated for the portion of the interview you have completed.

Are there benefits for taking part in the study?
There are no direct benefits from participation in the research. Results from the study will be used to provide insights to help identify characteristics of participants/families that may need more support to remain in the program. In the long term, the hope is that the information will help improve the WIC program.

What are the costs for participating in this research?
If you take part in this study, you are responsible for your own transportation costs.

Are there any risks to being a part of this project?
To the best of our knowledge, there is minimal risk for participating in this project. Risks may include a breach of privacy (others may find out the subject is participating in research) and/or confidentiality (others may find out information about the subject collected or disclosed during the research). There are no physical risks involved. Your participation in this study will not affect your WIC services in any way. You should feel free to ask questions at any time. You do not have to answer any questions that make you feel uncomfortable.

What will happen to the information I share?
The information you provide will be kept confidential and only viewed by the research staff. All interview data will be stored separately from your personal information (name, contact information and consent form) in a locked file cabinet and on a password-protected computer. If you provide your WIC ID number, IDHS staff will send the information described above from your WIC records to research staff. This information will also be stored on a password-protected computer. Project staff members are trained to respect your privacy. All participants will be assigned a unique identification number. Digital files will be destroyed after the final paper/report is published (approximately 5 years). After completion, information from the study will be summarized in reports, oral presentations and/or publications.

What about privacy and confidentiality?
All members of our research team will know you are participating in this research study. However, in some cases staff at the WIC agency where you receive services will also know you are a participant in this study. Information about you will only be disclosed to others with your written permission, or if necessary to protect your rights or welfare or if required by law. In some cases, study information which identifies you and the consent form signed by you could be reviewed by the UIC Office of the Protection of Research Subjects/State of Illinois Auditors for auditing purposes. When the results of the research are published or discussed in conferences and shared with IDHS, no information will be included that would reveal your identity. Only a summary report will be provided. If the researchers become aware of any abuse and/or neglect of yourself or others, the researchers may report this to the appropriate authorities without your consent.

Can I withdraw from the study?

You can choose whether to be in this study or not. If you agree to be in this study, you may withdraw at any time without consequences of any kind and will still receive compensation as described above.

Who do I contact if I have questions?

If you have questions about the study, you may contact Dr. Angela Odoms-Young at (312) 355-0383.

What are my rights as a research subject?
If you feel you have not been treated according to the descriptions in this form, or you have any questions about your rights as a research subject, you may call the Office for the Protection of Research Subjects (OPRS) at 312-996-1711 (local) or 1-866-789-6215 (toll-free) or e-mail OPRS at uicirb@uic.edu.

Agreement: The study has been explained to me by _____ (Name of Graduate Assistant or Researcher), and she has answered my questions and concerns. He/she has provided me with a copy of the consent form. I understand this consent form and the meaning of this information. I understand what I am being asked to do and my rights as a study participant. I understand that I may stop my participation at any time. I also understand that if there are any significant changes in the study, I will be told and given the opportunity to stop my participation.

Remember:

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

I have read the consent form and agree to participate in this study as described.

☐ I consent ☐ I do not consent

_____ _____ _____

Participant's Signature Printed Name Date

I, _____ certify that I have fully explained the study to the above participant(s). I also agree to do everything possible to maintain participants' confidentiality and answer any question that may arise.

_____ _____

Signature of Person Obtaining Consent Date (must be same as subject's)

_____

Printed Name of Person Obtaining Consent

APPENDIX XIV: IN-DEPTH INTERVIEW AMENDMENT IRB APPROVAL

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice
Amendment to Research Protocol and/or Consent Document – Expedited Review
UIC Amendment # 13

February 25, 2016

Angela Odoms-Young, PhD
Department of Kinesiology and Nutrition
1919 W Taylor Street
Human Nutrition and Kinesiology, M/C 516
Chicago, IL 60612
Phone: (312) 413-0797 / Fax: (312) 413-0319

RE: Protocol # 2014-0518
"Evaluation of the 'WIC to 5' Pilot Program to Improve Child Retention in the Illinois Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)"

Dear Dr. Odoms-Young:

Members of Institutional Review Board (IRB) #2 have reviewed this amendment to your research and/or consent form under expedited procedures for minor changes to previously approved research allowed by Federal regulations [45 CFR 46.110(b)(2)]. The amendment to your research was determined to be acceptable and may now be implemented.

Please note the following information about your approved amendment:

Amendment Approval Date: February 15, 2016

Amendment:

Summary: UIC Amendment #13 (response to modifications), dated and submitted to OPRS 3 February 2016, is an investigator-initiated amendment regarding the following:

(1) adding additional in-depth, semi-structured, audio-recorded 45-90 minute interviews with a sub-sample of 25-40 subjects who have completed the baseline survey, who have previously consented to participate in the longitudinal surveys, and who have previously agreed to be contacted for future studies; subjects will receive $20 in compensation, increasing their possible total compensation to $100; the interviews will better assess the participants' perceived value of WIC and whether the WIC to 5 program has influenced these perceptions (Initial Review application, v11, 2/2/2015; Research Protocol, v9, 2/2/2015; 13-14 Mo Survey, v1, 2/3/2016);

(2) submitting revised versions of the 3-5 month survey and the 7-8 month survey (3-5 Month Survey, v8, 12/16/2015; 7-8 Month Survey, v8, 1/6/2016);

(3) adding Uletta Jackson, Heather Hathaway Miranda, Ifreke King, Faiza Kalam, and Yvette Whorton as key research personnel (Appendix P); and

(4) adding a Recruitment Text Message (v1, 11/10/2015);

(5) submitting recruitment and consent documents regarding the new interviews (Interview Recruitment Form, v2, 2/2/2015; Interview Eligibility Form, v2, 2/2/2015; Interview Consent Form, v2, 2/2/2015);

(6) increase total sample size by 50 subjects.

Approved Subject Enrollment #: 590
Performance Sites: UIC, Roseland Community Hospital, Macon County Health Department, IL, Vermilion County Health Department, Peoria City/County Health Department, Kankakee County Health Department, McLean County Health Department, DeKalb County Health Department, Sinai Community Institute
Sponsor: US Department of Agriculture
PAF#: 2011-03842
Grant/Contract No: Not available
Grant/Contract Title: WISP-10-IL Concept Paper

Research Protocol:
a) Research Protocol; Version 9; 02/02/2015

Recruiting Materials:
a) WIC Retention Participant Interview Recruitment Form, Version 2, 02/02/2015
b) WIC Retention Participant Interview Eligibility Form, Version 2, 02/02/2015
c) WIC to 5 Recruitment Text Message, Version 1, 11/10/2015

Informed Consents:
a) WIC Retention Participant Interview Consent Form, Version 2, 02/02/2015
b) A waiver of documentation of informed consent has been granted under 45 CFR 46.117 for the interview done via telephone; minimal risk; verbal consent will be obtained.

Receipt Date	Submission Type	Review Process	Review Date	Review Action
01/11/2016	Amendment	Expedited	01/14/2016	Modifications Required
02/03/2016	Response To Modifications	Expedited	02/15/2016	Approved

Please be sure to:
→ **Use only the IRB-approved and stamped consent documents when enrolling subjects.**

→ Use your research protocol number (2014-0518) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the
"UIC Investigator Responsibilities, Protection of Human Research Subjects"
(http://research.uic.edu/irb/investigators-research-stuff/investigator-responsibilities)

Please note that the UIC IRB #2 has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS at (312) 996-1711 or me at (312) 413-8457. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Barbara Corpus
Associate Director, IRB # 2
Office for the Protection of Research Subjects

Enclosures will be sent electronically:

1. **Informed Consent Document:**
   a) WIC Retention Participant Interview Consent Form, Version 2, 02/02/2015
2. **Recruiting Materials:**
   a) WIC Retention Participant Interview Recruitment Form, Version 2, 02/02/2015
   b) WIC Retention Participant Interview Eligibility Form, Version 2, 02/02/2015
   c) WIC to 5 Recruitment Text Message, Version 1, 11/10/2015

cc: Charles B. Walter, Department of Kinesiology and Nutrition, M/C 517

APPENDIX XV: IN-DEPTH INTERVIEW PROTOCOL

Parent/ Caregiver In-Depth Interview Protocol
(Questions are not in any specific order)

Topic Areas	Proposed Questions	Outcomes
Life Course Influences	Can you tell me a little about yourself and your family? How many children? Who lives with you? (much gathered from demographic data) Do you live/ work around here? How long? What is it like? Do you like it? Does it feel safe? Can you describe your community?	Influences on personal and household food system
Household and personal food system	Can you tell me the foods that you and your family eat on a typical day? Who is involved with the preparation of food? Is it easy or difficult? Is it time consuming? How do meals happen? (e.g., Do you have to plan ahead? Time controlled by the clock? Figure it out spontaneously/on the fly) Do you have time to plan/ cook? How did you learn to do it? Who shops for the food? Where? Why go there? How do you decide what to eat? How do you decide what to feed your child/ children? What resources are used to get food in to the household? (e.g., SNAP, WIC, other family members, pantries, out of pocket)	Overlap and influence on food value negotiations Timestyle: active, reactive, spontaneous
Food value negotiations	What foods are the most important in your household? (taste, health, convenience, cost) Are there any rules about food? What kind of eater would you say you are? Are there any WIC foods or items that are important to your family? Which ones? Are there any WIC foods you or your family doesn't care for? Which ones? Are any of the WIC foods more important to your family than other WIC foods? Which ones? Are any of the WIC foods more valuable to you than the other WIC foods? Which ones? Have you tried all of the WIC foods that are available? Are there any you haven't tried or don't want to try? (go through the foods) What do you think of the WIC foods in general? (Savings, nutrition, child health, convenience/ inconvenience, easy/ difficult to prepare etc.)	Motivations behind eating/ feeding behaviors/ choices Values behind eating/ feeding behaviors/ choices Prioritization or balance of motivations/ values

	Would you say the foods in WIC are "worth it"? Why or why not?	
WIC experience and WIC value	WIC experience? When did you first hear of WIC? Can you tell me why you come to WIC? What is it like at WIC? What is it like shopping for WIC items? Easy? Difficult? inconvenient Positive experiences? Clinic, shopping, etc. Negative experiences? Clinic Shopping etc.	Perceptions of/Concerns with WIC Prioritization or balance of motivations/ values Barriers to using WIC Facilitators to using WIC
Retention of children	Some parents/care givers keep their children enrolled in the WIC program until the age of five and some leave the program when their child is still eligible. What are some of the reasons why you think people leave/drop out of the program although their child is still eligible? Have you ever considered withdrawing yourself or child from the program? Can you describe any barriers/difficulties that you have experienced that make it difficult to keep your child in WIC? e.g., Problems enrolling, recertifying, during office visit and while shopping; lack of transportation, work/school/family obligations, inconvenient voucher pick up hours, long wait time, limited food choice	Reasons participants stay Reasons participants leave Barriers to using WIC Facilitators to using WIC

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VITA

EDUCATION:

Ph.D. Human Nutrition, University of Illinois Chicago, 2017
M.S. Nutrition Science, University of Illinois at Urbana-Champaign, 2008
B.S. Human Nutrition and Dietetics, University of Illinois at Urbana-Champaign, 2006

CREDENTIALS:

Registered Dietitian (R.D. # 968606)

TEACHING EXPERIENCE:

Department of Kinesiology and Human Nutrition, University of Illinois Chicago, 2009-2016

- Served as a preceptor for dietetic interns' supervised practice rotations within community nutrition research settings
- Assisted with teaching, grading, and administration of both lab and lecture based graduate and undergraduate nutrition courses
  - Nutrition: HN 196
  - Nutrition Assessment: HN 200
  - Culture and Food (lecture and lab): HN 202
  - Science of Foods (lecture and lab): HN 300
  - Human Nutrition and Metabolism: 307
  - Intro to Community Nutrition: HN 313
  - Mechanisms of Chronic Disease: HN 318
  - Advanced Topics in Public Health Nutrition: HN 560

Nutrition Science Department, Dominican University, River Forest, Illinois, 2012- 2014

- Taught and developed course content for undergraduate nutrition courses
  - Medical Nutrition Therapy: Nutrition Care Process: NUTR 430
  - Principles of Food Service Purchasing: NUTR 375

English as a second language (ESL), Student Visa Teaching Exchange, Paris, France, 2008-2009

- Taught spoken and written English to groups of French speaking children aged 7-12

McKinley Health Center Nutrition Education Program, University of Illinois at Urbana-Champaign, 2006-2008

- Implemented and delivered nutrition education within McKinley Health Center, campus recreation facilities, university living settings, and all student registered organizations
- Trained undergraduate dietetic students to deliver peer education
- Developed and revised patient nutrition education materials

TEACHING EXPERIENCE (CONTINUED):

Expanded Food and Nutrition Education Program, Illinois Extension Program, Peoria, Illinois, 2006

- Lead nutrition education activities for low-income youth ages 8-15 at several city-wide summer-school based program sites
- Presented food safety information, food preparation techniques, and healthy eating tips to low-income adults and caregivers of children
- Trained other employees in food preparation, sanitation, and nutrition education delivery

RESEARCH EXPERIENCE:

Department of Kinesiology and Human Nutrition, University of Illinois Chicago, Nutrition, Obesity, and Health Equity Research Group, 2009- -

- Lead qualitative data collection and analysis and co-lead quantitative data collection and analysis for projects addressing retention of child participants in the Illinois WIC program 2015-present
- Participated in evaluation and intervention design to address retention of children in the Illinois WIC program 2011-2014
- Manager and point person for dietary data needing to be collected, entered, and analyzed for a community-based weight loss intervention for African American women 2011-2013
- Manager and point person for dietary data needing to be collected, entered, and analyzed for an analysis before and after the WIC food package change 2009-2010
- Analyzed qualitative data surrounding child feeding practices, food access issues, and budgeting strategies among low-income African American caretakers 2009-2010

Department of Nutritional Sciences, University of Illinois Urbana-Champaign 2006-2008

- Researched curriculum/program development in Hispanic populations relative to diabetes 2007-2008
- Systematically reviewed literature for departmental grant pertaining to soy and diabetes 2007
- Researched nutrition faculty's motivation to collaborate for tri-university USDA Foods for Health Program 2006-2007

RESEARCH EXPERIENCE (CONTINUED):

Adult Learning Lab, Department of Educational Psychology, University of Illinois at Urbana-Champaign, 2004-2006

- Lead groups of senior citizens in solving mind engagement activities, verbal problems, and hands-on-spontaneous problems for research purposes of experimental research on developing aging minds
- Pre-tested and post-tested subjects
- Evaluated, entered, and transcribed recorded data

MEMBERSHIPS:

American Public Health Association
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ABSTRACTS:

Weber SJ, Odoms-Young AM, Uesugi K, Reese L, Bess S. Understanding food preferences of caregivers/parents of children participating in WIC: implications for participation and retention. Abstr Am Public Health Assoc Ann Meet. 2016

Porter SJ, Odoms-Young AM, Uesugi K, Reese L, Bess S. What we like and what it's worth: preferences and values of WIC foods and WIC food packages. J Nutr Educ Behav. 2016 Jul; 48(7):S99-100

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Porter SJ, Zenk SN, Watkins A, Hoskins-Wroten J, Holland L, Bamidele O, Bandstra J, Tate C, Fitzgibbon ML. Marketing influences on food consumption, acquisition, and purchasing behaviors in low income African American families with young children. Abstr Am Public Health Assoc Ann Meet. 2010

PUBLICATIONS:

Uesugi K, Porter S, McGown M, Fitzgibbon ML, Reese L, Bess S, Odoms-Young A. Healthcare professionals' attitudes and knowledge About the WIC Program: implications for promoting partnerships among WIC stakeholders J Nutr Educ Behav. 2014 Jul; 46(4):S15

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Kong A, Odoms-Young AM, Schiffer LA, Berbaum ML, Porter SJ, Blumstein L, Fitzgibbon ML. Racial/ethnic differences in dietary intake among WIC families prior to food package revisions. J Nutr Educ Behav. 2013 Jan;45(1):39-46.

Porter, SJ; Chapman-Novakofski, KM; Scherer, JA. Your Guide to Diet and Diabetes: Web-based Diabetes Education Tailored to Hispanics Audiences. J Nutr Educ Behav. 2009;41 (5): 374-376