Community Needs Assessment
WIC of South Carolina

Danelle Olson
University of Alabama
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Introduction

The Women, Infants, and Children (WIC) Nutrition program provides multiple services at no cost to South Carolina families who qualify.[1] WIC's mission is to partner with low-income women and their families who are at nutritional risk and provide nutritional counseling focused on the needs and concerns of each individual.[2] The WIC program offers monthly benefits to buy healthy food, food packages, personalized nutrition information and support, breastfeeding support, referrals for services that can benefit the whole family, immunization screening and referral, infant formula support, and nutrition and health classes on a variety of topics including meal planning, caring for a new baby, shopping on a budget and more.[2] WIC program benefits include improved birth outcomes and health care cost savings; improved diet and diet-related outcomes; improved preconception nutritional status and infant feeding practices; improved immunization rates; and improved childhood cognitive and growth development.[2] There are several WIC food stamp program options: infant, children, prenatal, breastfeeding, partial breastfeeding, or non-breastfeeding. The unmet needs correlate with those unaware of the programs and resources available.[1]

Several programs and services are currently in place to address the perceived problems affecting low-income women and their families, in addition to WIC, including South Carolina Food Banks and Food Pantries, South Carolina Department of Education Summer Food Service Program, South Carolina Thrive (support for financial assistance, food pantries, medical care and other free or reduced-cost help), Supplemental Nutrition Assistance Program (SNAP), Medicaid - South Carolina Healthy Connections and Eat Smart, Move More Coalition of South Carolina (ESMM-SC). Although many programs are available, each serves a specific purpose but works collectively to support the community. WIC recipients are still in need of nutritional support to combat the prevalence of obesity, preterm labor, and neural tube defects.

Previous survey results and methods used to survey participants included in-person, mail, and phone surveys.[3] Prior survey topics included participant characteristics; characteristics of WIC women and mothers of WIC infants and children; characteristics of the WIC economic unit; income of WIC participants; food assistance, food spending, and food security; nutritional risk factors; incidence and duration of breastfeeding; health insurance coverage; factors affecting enrollment and continued participation; WIC Income-Eligibility Determination and Errors in Income Certification; review of state WIC agency income eligibility guidelines; and estimates of WIC income certification error.[3]

The USDA Food and Nutrition National Survey is conducted every ten years, most recently in 2021. The results indicated that 50% of recipients didn't receive enough fruits and vegetables.[3] Of the WIC recipients who said they did not purchase all WIC foods (43 percent),

reasons included nutritional content, store availability, and taste.[3] Additional survey results addressed the number of participants enrolled, size, safety and accessibility of WIC offices, usage of farmers markets, and satisfaction with WIC staff and services.[3]

Nutritional problem

Obesity is a worldwide epidemic that affects 38.3% of the women in South Carolina[4] and accounts for over $173 billion in state healthcare spending in 2019[5]. It is associated with several other chronic diseases, including cardiovascular disease, type 2 diabetes, and cancer. Obesity can directly impact a woman's health before and during pregnancy and the unborn child's health. Obesity in pregnancy can result in gestational diabetes, gestational hypertension, stillbirth, pre-eclampsia, preterm birth, sleep apnea, cardiac dysfunction, congenital anomalies, and venous thromboembolism.[6,7,8] Although the WIC program offers women nutritional and health support, initial program discussions indicate that many recipients are overweight and still experiencing preterm births and low folic acid intake. Maintaining a healthy weight and adequate nutrition intake can reduce the prevalence of obesity in pregnancy and newborn health and reduce subsequent health disparities for the mother and health complications for the newborn.[6,7,8]

Project goal:

To determine the prevalence of obesity and health-related complications among women aged 18 to 44 years old, including prior preterm births and children born with neural defects due to low folic acid consumption and low fruit and vegetable consumption, and to reduce the diseases associated with obesity that burden this population.

Goal objectives

- To assess the prevalence of obesity in women by administering a written survey to at least 20 participants.
- To identify the percentage of women who consume fruits and vegetables through a validated nutrition screening tool.
- To examine the potential impact of multivitamins, prenatal vitamins, or folic acid vitamins by surveying recipients' consumption of such vitamins.

Methods

The survey was distributed in person to the WIC recipients in the office for routine appointments. The survey included four sections: demographic information, health and nutrition, physical activity, and lifestyle data, and contained both open and closed-ended questions. The demographic section inquired about the patient's age, race, ethnicity, primary language, residential city, and zip code. Special attention was given to whether the recipient was currently pregnant, the number of children, the week the birth occurred within each pregnancy, and whether any of the children were born with neural tube defects such as spina bifida or anencephaly due to the impact the answers have on the needs assessment. The survey included questions regarding the recipient's current height and weight. Demographic questions were validated by the Behavioral Risk Factor Surveillance System (BRFSS).

Next, the health and nutrition section inquired whether a doctor or nurse provided ways to prepare for a healthy pregnancy and baby, whether the recipient took a multivitamin, prenatal vitamin, or folic acid vitamin, whether the recipient knew the purpose of B vitamin folic acid,[9,10] and if the recipient had been diagnosed with diabetes, high blood pressure, high cholesterol, or heart disease. Regarding specific nutrition questions, the recipient responded to questions about fruit, vegetable, whole grain, and soft drink intake. Health and nutrition questions were validated by the BRFSS and the National Health and Nutrition Examination Survey (NHANES).

The physical activity section inquired whether a doctor spoke to the recipient about physical exercise and how long the recipient felt they should exercise or be physically active daily for good health. BRFSS and NHANES provided validated physical activity questions. Finally, the lifestyle section inquired how often the recipient cooked dinner or supper at home in the past seven days and the reasons for purchasing fast food or pizza. NHANES-validated lifestyle questions were used.

Survey Results

Demographics

Twenty recipients were surveyed (n=20). The mean age of survey respondents was 29, ranging from 21 to 39. Table 1 represents the demographics of the WIC recipients surveyed. Reporting was limited to women due to the representation of the Women, Infants, and Children Nutrition program.

Table 1: Demographics of WIC Survey Respondents

	Number	Percent (%)
Age		
Age 18 to Age 24	7	35
Age 25 to Age 34	9	45
Age 35 to Age 44	4	20

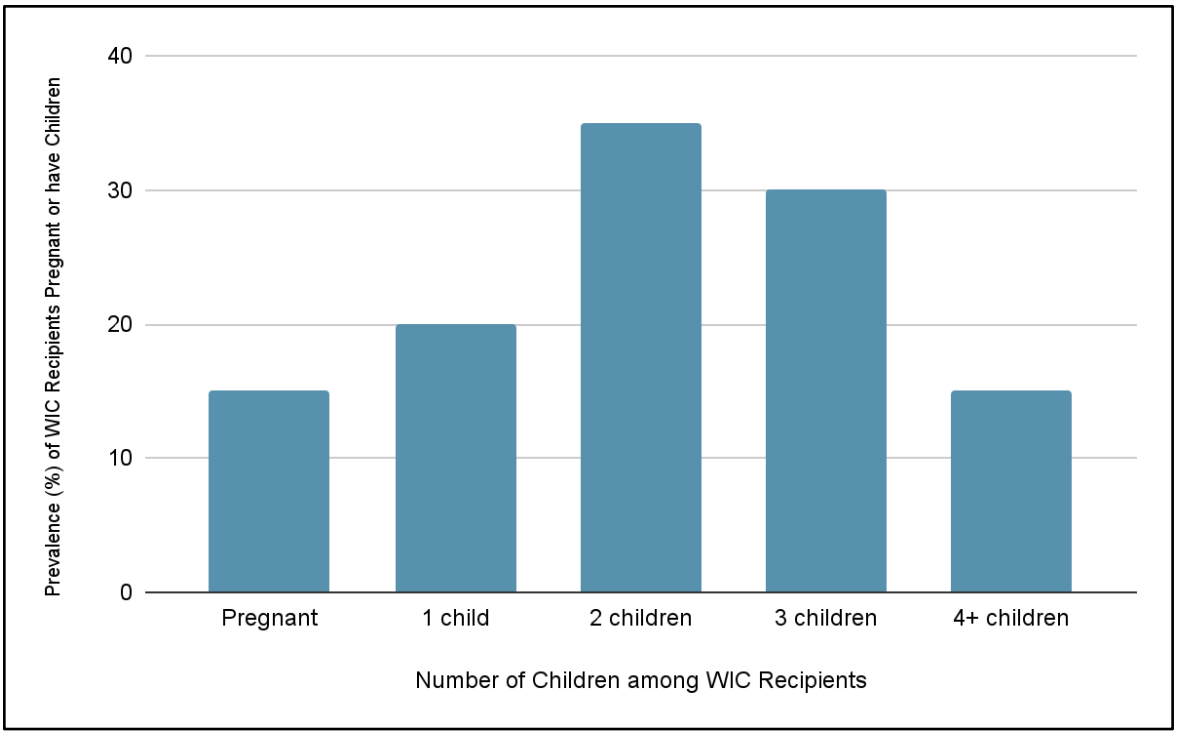
Race		
White	7	35
African American	6	30
American Indian or Native	2	10
Asian		
Native Hawaiian or Pacific Islander	2	10
Other/Mixed Race	3	15
Ethnicity		
Hispanic	12	60
Not Hispanic	8	40
Language Spoken		
English	16	80
Other	4	20

Source: WIC Recipient Survey Data

Recipients provided the city and zip code where they reside. Of the responses provided, the two most common locations were Rock Hill: 29731 and 29732 and York: 29745, with 80% (16 out of 20 respondents) of WIC recipients in these areas. These locations are the closest to the WIC office in Rock Hill, SC. By asking recipients to provide their residence, it confirms that those traveling to the WIC office are nearby. Although there are 45 WIC offices in South Carolina, many are within hours of one another, thus requiring recipients to travel.

Chart 1 represents the percentage of WIC recipients with children and those who are currently pregnant. Of the recipients surveyed, 35% (7 out of 20 respondents) had two children.

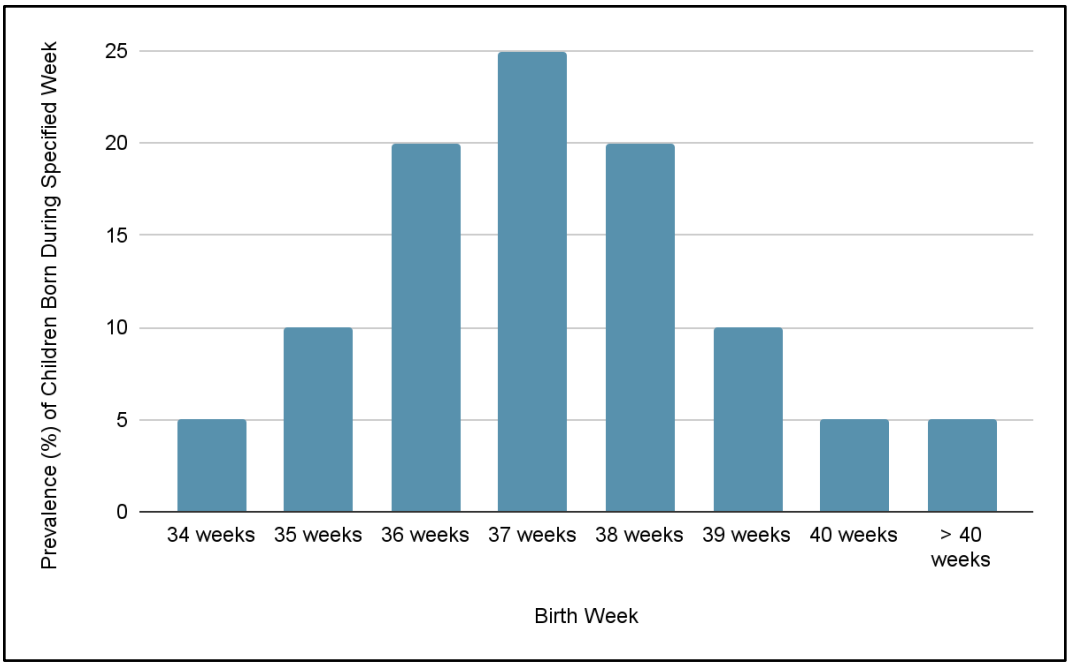
Chart 1: Prevalence of WIC Recipients currently Pregnant or have Children.



Source: WIC Recipient Survey Data

Chart 2 details when the recipients' children were born during the pregnancy. The most significant number of children, 25% (5 out of 20 recipients), were born during the 37th week of pregnancy.

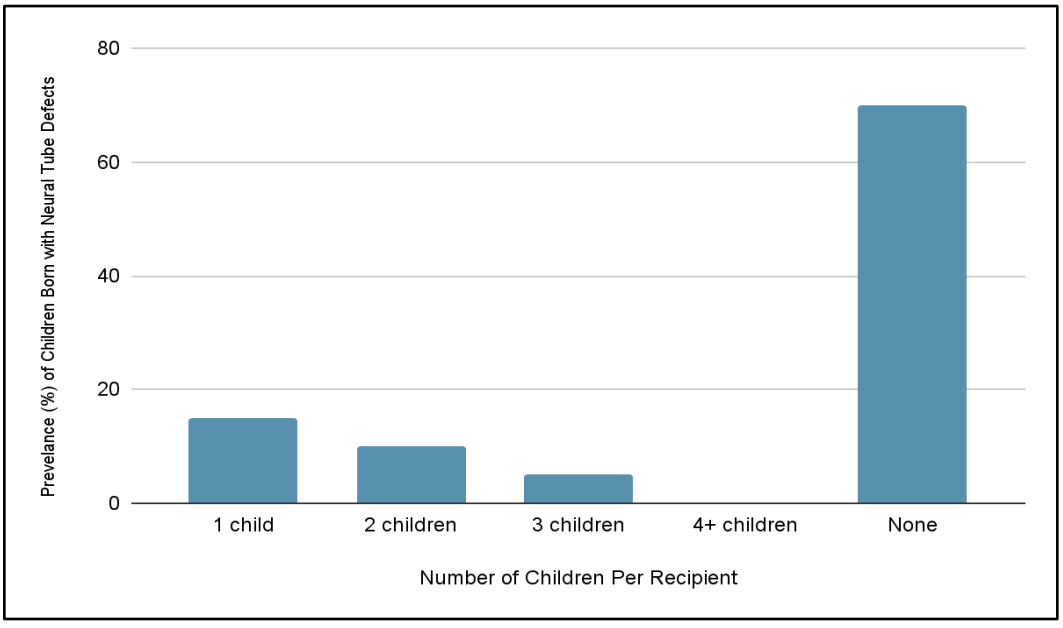
Chart 2: Prevalence of WIC Children Born During Weeks 34 - 40 of Pregnancy.



Source: WIC Recipient Survey Data

Recipients provided details on whether any of their children were born with neural tube defects, including spina bifida (a spinal cord defect) and anencephaly (a brain defect).[11] Results listed in Chart 3 represent the most significant percentage of children born without neural tube defects: 75% or 15 out of 20 respondents.

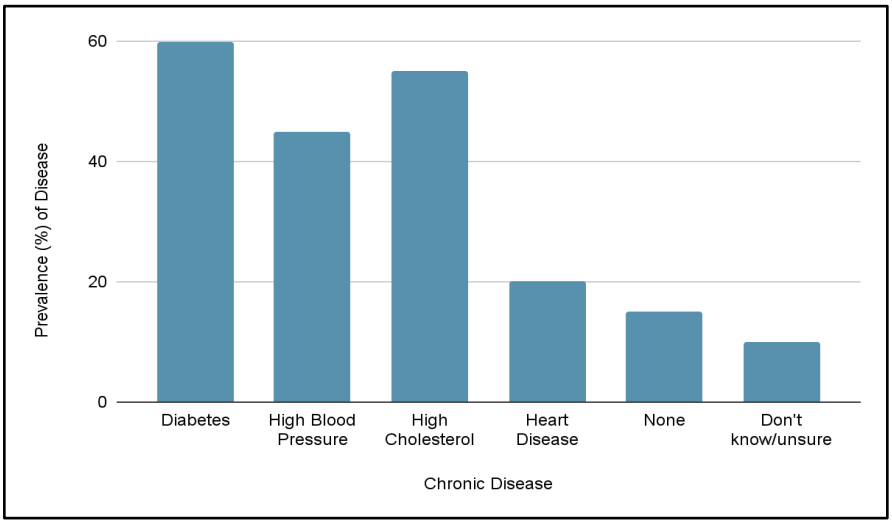
Chart 3: Prevalence of Children Born With Neural Tube Defects.



Source: WIC Recipient Survey Data

Chart 4 displays chronic disease prevalence among the surveyed population, which includes diabetes, high blood pressure, high cholesterol, and heart disease. Disease results were reportedly higher among the surveyed WIC recipients than the state average, with 60% (12 out of 20 respondents) having diabetes and 55% (11 out of 20 respondents) having high cholesterol. In South Carolina, 13.2% of adults have diabetes, and 42% of adults have high cholesterol.[12]

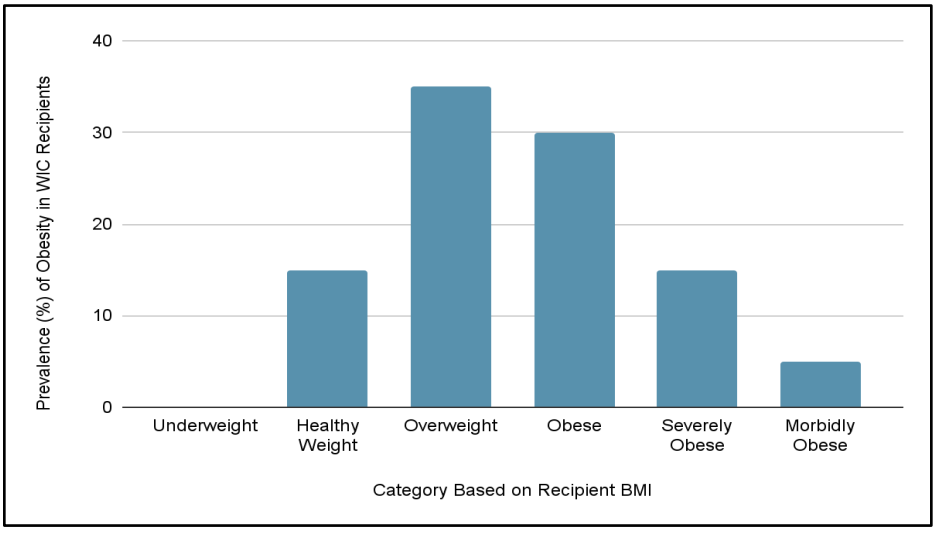
Chart 4: Prevalence of Nutrition-Related Chronic Disease in WIC Population



Source: WIC Recipient Survey Data

WIC recipient height and weight responses were used to calculate the recipients' BMI. Standard BMI categories are referenced: Underweight < 18.5; Healthy Weight 18.5 - 24.9; Overweight 25 - 29.9; Obese 30.0 - 34.9; Severely Obese 35 - 39.9; and Morbidly Obese ≥ 40 and presented in chart 5. Survey results demonstrated recipients are primarily overweight and obese.

Chart 5: Prevalence of Obesity in WIC Population



Source: WIC Recipient Survey Data

Health and Nutrition

When recipients were asked if a doctor, nurse, or other health care worker ever discussed ways to prepare for a healthy pregnancy and baby, 75% (15 out of 20 respondents) answered yes. Table 2 demonstrates the prevalence of the discussions.

Table 2: Prevalence of Discussions for Healthy Pregnancy and Baby.

	Percent (%)
Yes	75
No	20
Don't know/unsure	5

Source: WIC Recipient Survey Data

Table 3 depicts the number of times recipients take a multivitamin, prenatal vitamin, or folic acid vitamin per week. Most recipients do not take a vitamin consistently, with 40% (8 out of 20 respondents) taking a vitamin 1 - 3 times per week and 30% (6 out of 20 respondents) taking a vitamin 4 - 6 times per week.

Table 3: WIC Recipient Vitamin Intake

	Percent (%)
0 times per week	15
1 - 3 times per week	40
4 - 6 times per week	30
Every day of the week	10
Don't know/unsure	5

Source: WIC Recipient Survey Data

Of the recipients who answered the question regarding the reason for taking 400 micrograms of B vitamin folic acid,[9,10] many were unclear as to whether it was needed to make strong bones or to prevent birth defects. Table 4 provides details of the recipients' responses.

Table 4: WIC Recipient Understanding of Folic Acid Use

	Percent (%)

To make strong bones	35
To prevent birth defects	35
To prevent high blood pressure	5
Some other reason	15
Don't know/unsure	10

Source: WIC Recipient Survey Data

Table 5 describes recipients' fruit, vegetable, and whole grain consumption. Usual intake was assessed by asking how often recipients ate various fruits, vegetables, and whole grains over the past month. The median fruit intake was three servings per day, and 40% of recipients (8 out of 20 respondents) consumed less than five servings daily. The median vegetable intake was two servings per day, with 30% of recipients (6 out of 20 respondents) consuming less than five servings of vegetables daily. The median whole grain intake was three servings per day, with 20% of recipients (4 out of 20 respondents) consuming less than three servings of whole grains daily. Results do not meet the recommended daily allowance of fruits, vegetables, or whole grains.

Table 5: WIC Recipient Fruit, Vegetable and Whole Grain Intake

	Fruits	Vegetables	Whole Grains
Median intake (times per day)	3	2	3
Percentage reporting consumption of less than five recommended servings per day	40	30	
Percentage reporting consumption of less than three recommended servings per day			20

Source: WIC Recipient Survey Data

Table 6 describes the availability of soft drinks, fruit-flavored drinks or fruit punch in the home. Soft drinks, fruit-flavored drinks, and fruit punch are high in both sugar and empty calories and represent a potential contributor toward recipient obesity.[4]

Table 6: Availability of Soft Drinks, Fruit-Flavored Drinks or Fruit Punch in the Home

	Percent (%)
Always	30
Most of the time	25

Sometimes	30
Rarely	10
Never	5

Source: WIC Recipient Survey Data

Physical Activity

Table 7 describes whether a health care professional discussed physical activity with the client within a specified time-frame. Recipients' responses: 30% (6 out of 20 respondents) indicated that most doctors or health professionals discussed physical activity within the past twelve months. However, for many, 25% of the recipients (5 out of 20 respondents), it was three years or more ago. It would be helpful to correlate this survey question with the recipients' last medical office visit to provide accurate time frames for physical activity discussions.

Table 7: Physical Exercise Discussed by Doctor or Health Professional

	Number	Percent (%)
Past 12 months	6	30
Past 1 - 3 years	3	15
Three years or more ago	5	25
No	4	20
Don't know/unsure	2	10

Source: WIC Recipient Survey Data

Recipients' answers varied regarding the recommended time to exercise or be physically active each day for good health from a minimum of 15 minutes to a maximum of 75 minutes. Most recipients: 60% (12 out of 20 respondents) felt 30 minutes of physical activity was adequate.

Lifestyle Data

Results found that 75% of recipients (15 out of 20 respondents) made dinner at home less than four days per week. Recipients purchased fast food or pizza due to convenience and tasting better than foods cooked at home. Eating out can result in unhealthy food choices and increased

calorie consumption depending on food selection and portion, resulting in obesity, which is a risk factor for preterm births.[8]

Data Analysis and Interpretation

The results of the WIC survey indicate several unmet nutritional and educational needs among program recipients, including meeting the recommended fruit, vegetable, and whole grain intake, daily vitamin intake and the importance of doing so, and healthy weight maintenance to reduce the risk of chronic diseases and obesity.

Although the median values for fruit and vegetable intake were similar to the state average (fruit three times per day compared to two or more for the state and vegetables two times per day compared to three or more for the state), the overall fruit and vegetable intake and frequency were lower than state and averages.

In South Carolina, 9.9% of women ages 18-44 consume less than five servings of fruits and vegetables daily. However, 40% (8 out of 20 respondents) of the surveyed population reported consuming fewer than five servings of fruits, and 30% (6 out of 20 respondents) reported consuming fewer than five servings of vegetables. A total of 43.2% of adults consume less than one serving of fruit per day, and 18.7% of adults consume less than one serving of vegetables per day in South Carolina.[12] The survey evaluated fruit and vegetable intake using questions from the BRFSS fruit and vegetable module, which does not include portion sizes. Information may only be partially accurate due to self-reporting.

Neural tube defects were reportedly less than the state averages, with WIC recipients reporting 15% (3 out of 20 respondents) versus the recorded .56 per 1000 births in South Carolina.[11] Preterm births were considerably high in the surveyed recipients, ranging from 5-25% or 1 to 5 (out of 20) respondents having children born at 34 to 37 weeks. As many recipients were unclear on the reasoning behind taking a multivitamin, prenatal vitamin, or folic acid vitamin and how it may impact neural tube defects in the unborn child, further review is necessary.

The current obesity prevalence rate for the state of South Carolina is 24.4% for women ages 18-44.[3] However, it is greater than 30% (6 out of 20 respondents) within the surveyed WIC population. Obesity not only increases the risk for other health conditions such as coronary heart disease, stroke, and diabetes but can cause many complications during childbirth.[7,8,9] With 75% (15 out of 20 respondents) of WIC surveyed, participants stated they cook dinner at home less than four times per week. Recipients often eat out due to convenience, and the food usually tastes better, indicating an increased risk for obesity and a need for nutritional education.

Of the recipients surveyed, 60% (12 out of 20 respondents) were diagnosed with diabetes, and 55% (11 out of 20 respondents) were diagnosed with high cholesterol, two chronic diseases frequently seen in obese patients. These results are higher than the state average, with 6 in 10

adults having one chronic disease and 4 in 10 adults having two chronic diseases, as reported by the South Carolina Department of Health and Environmental Control.[12]

Nutritional Problems / Needs

1. Risk of inadequate fruit and vegetable intake among WIC recipients as indicated by 40% (8 out of 20 respondents) of recipients consuming less than five servings of fruit a day, and 30% (6 out of 20 respondents) reporting low vegetative intake, especially dark green and orange vegetables.

2. Risk of obesity among WIC recipients, as indicated by 50% (10 out of 20 respondents) of recipients reporting a BMI greater than 30.0.

3. Risk of diabetes and high cholesterol among WIC recipients, as indicated by 55% (11 out of 20 respondents) diagnosed with diabetes and 60% (12 out of 20 respondents) diagnosed with high cholesterol.

4. Risk of inadequate folic acid vitamin intake among WIC recipients as indicated by lack of knowledge regarding folic acid and inconsistent vitamin intake.

5. Risk of inadequate nutritional knowledge among WIC recipients as indicated by 75% (15 out of 20 respondents) of recipients cooking less than four times per week.

Limitations

As with any survey, limitations do exist. The survey was distributed to the recipients who came to the Rock Hill office on the designated survey distribution dates. However, the WIC Nutrition program has multiple offices throughout South Carolina; therefore, the survey responses are specific to this location within the state. The survey was only available in English. Therefore, recipients who did not speak English required a friend, family member, or employee of the WIC office to translate and assist with completing the survey. In addition, the survey required self-reporting of physical demographics, such as height and weight, which may be more accurate if a survey representative had taken them.

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